Random Activation of Gene Expression (RAGE)

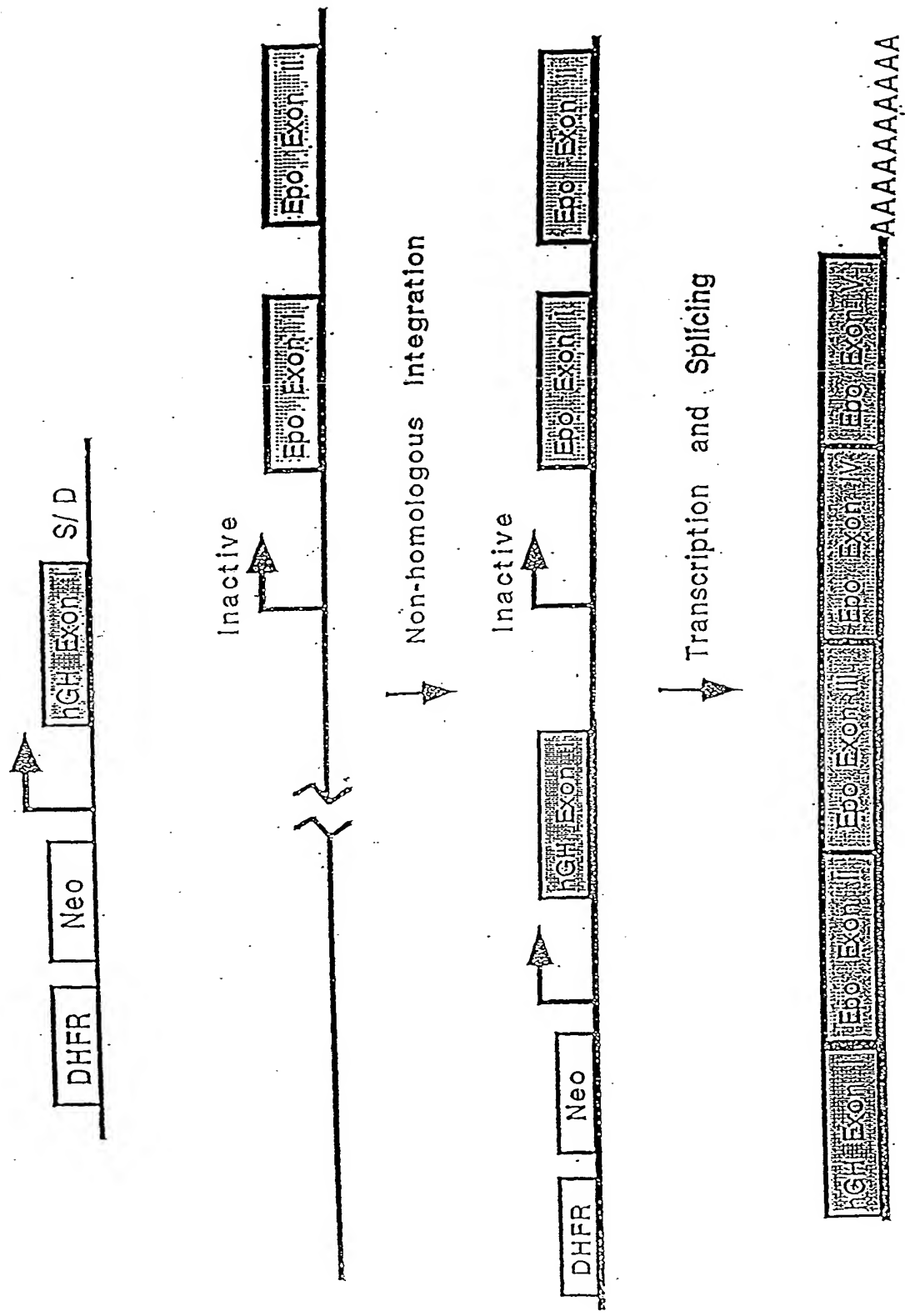
FIGURE 1

Activation Constructs without Translation Start Codons

Construct #
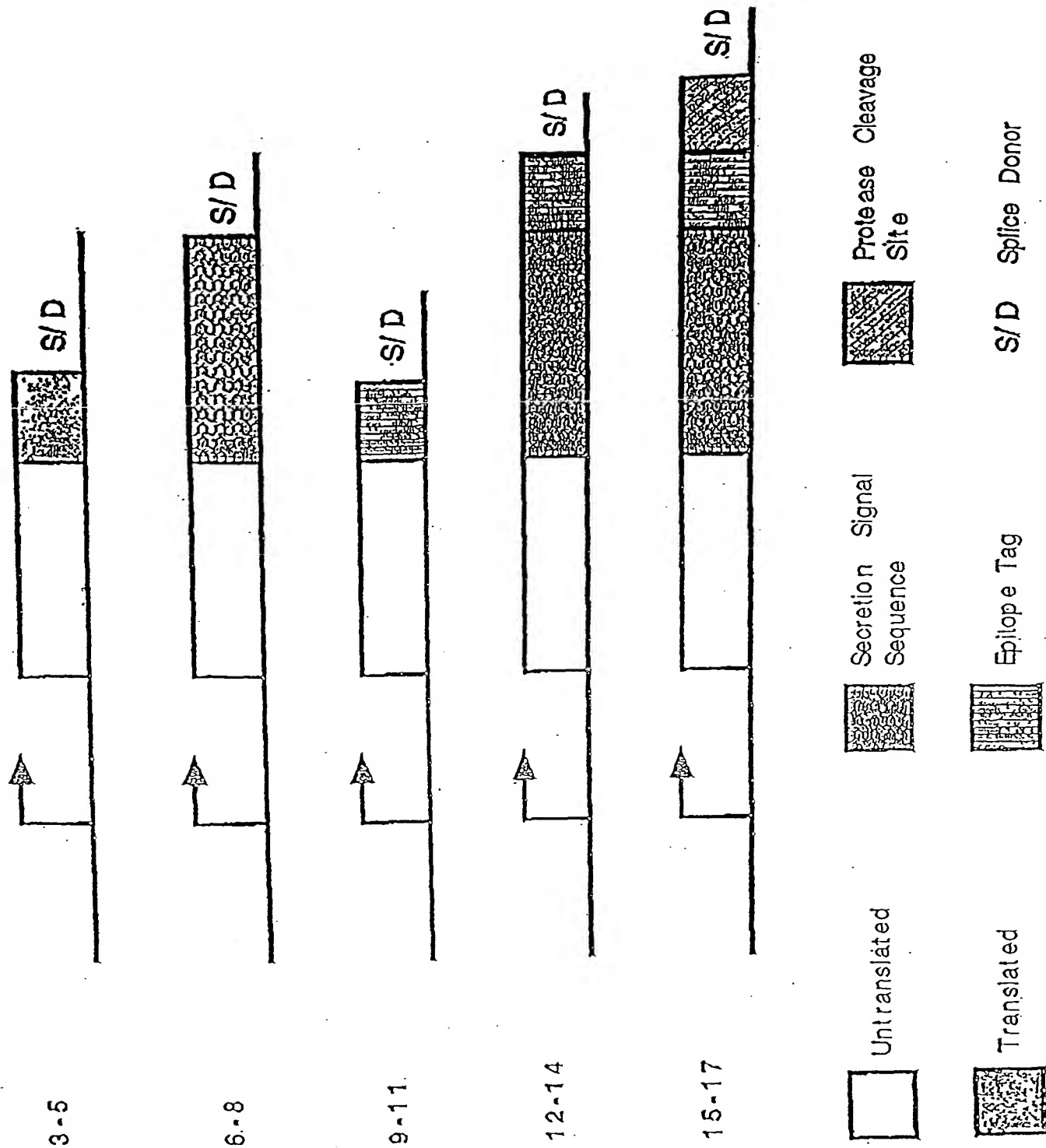
1

2

S/D

Untranslated

S/D Splice Donor

FIG. 2

Construct #

FIG. 3

3 - 5

6 - 8

9 - 11

12 - 14

15 - 17

S/D

Untranslated

Translated

Secretion Signal Sequence

Epitope Tag

Protease Cleavage Site

S/D   Splice Donor

pRIG-1

P_{RSV} DHFR P_{SV40} Neo P_{CMV} S/D

5' UTR   Start codon
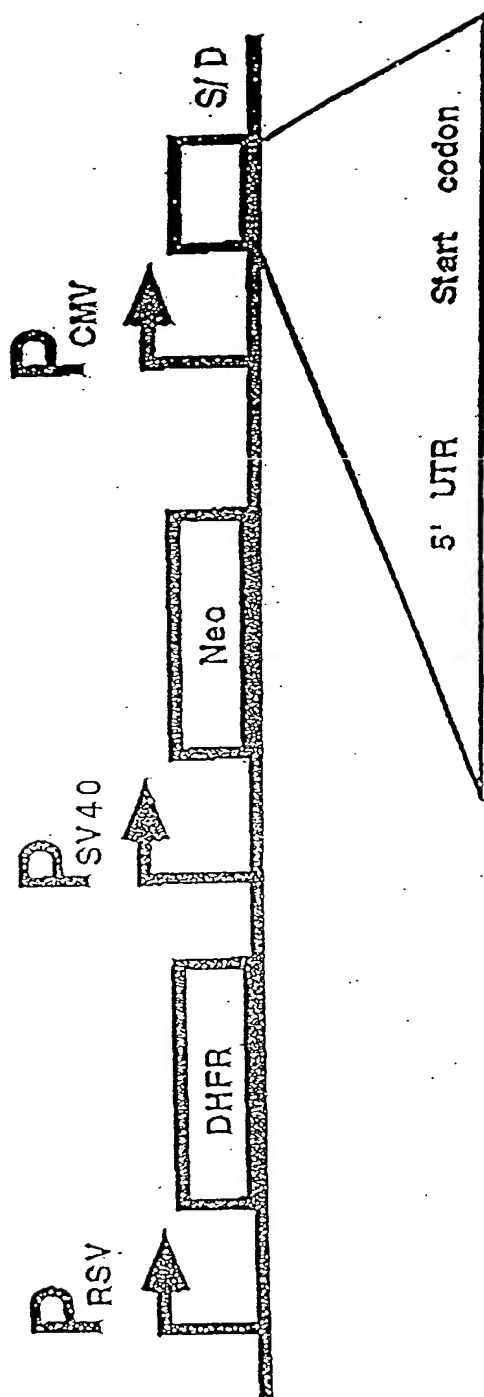
FIG. 1

5'AGATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATC
AATATTGGCTATTGGCCATTGCATA
CGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAATATGACCG
CCATGTTGGCATTGATTATTGACT
AGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAGT
TCCGCGTTACATAACTTACGGTAAA
TGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGACG
TATGTTCCCATAGTAACGCCAATAG
GGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGC
AGTACATCAAGTGTATCATATGCCA
AGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCC
AGTACATGACCTTACGGGACTTTCC
TACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTGATGCGGTTTT
GGCAGTACACCAATGGGCGTGGAT
AGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG
TTTGTTTTGGCACCAAAATCAACGG
GACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCCGTTGACGCAAATGGG
CGGTAGGCGTGTACGGTGGGAGGTC
TATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTAGAAGCTTTATTGCGG
TAGTTTATCACAGTTAAATTGCTAA
CGCAGTCAGTGCTTCTGACACAACAGTCTCGAACTTAAGCTGCAGTGACTCTCTT
AATTAACTCCACCAGTCTCACTTCA
GTTCCTTTTGCCTCCACCAGTCTCACTTCAGTTCCTTTTGCATGAAGAGCTCAGAA
TCAAAAGAGGAAACCAACCCCTAA
GATGAGCTTTCCATGTAAATTTGTAGCCAGCTTCCTTCTGATTTTCAATGTTTCTT
CCAAAGGTGCAGTCTCCAAAGAGA
TTACGAATGCCTTGGAAACCTGGGGTGCCTTGGGTCAGGACATCAACTTGGACAT
TCCTAGTTTTCAAATGAGTGATGAT
ATTGACGATATAAAATGGGAAAAAACTTCAGACAAGAAAAAGATTGCACAATTCA
GAAAAGAGAAAGAGACTTTCAAGGA
AAAAGATACATATAAGCTATTTAAAAATGGAACTCTGAAAATTAAGCATCTGAAG
ACCGATGATCAGGATATCTACAAGG
TATCAATATATGATACAAAAGGAAAAAATGTGTTGGAAAAAATATTTGATTTGAA
GATTCAAGAGAGGGTCTCAAAACCA
AAGATCTCCTGGACTTGTATCAACACAACCCTGACCTGTGAGGTAATGAATGGAA
CTGACCCCGAATTAAACCTGTATCA
AGATGGGAAACATCTAAAACTTTCTCAGAGGGTCATCACACACAAGTGGACCACC
AGCCTGAGTGCAAAATTCAAGTGCA
CAGCAGGGAACAAAGTCAGCAAGGAATCCAGTGTCGAGCCTGTCAGCTGTCCAG
AGAAAGGGATCCAGGTGAGTAGGGCC
CGATCCTTCTAGAGTCGAGCTCTCTTAAGGTAGCAAGGTTACAAGACAGGTTTAA
GGAGACCAATAGAAACTGGGCTTGT
CGAGACAGAGAAGACTCTTGCGTTTCTGATAGGCACCTATTGGTCTTACGCGGCC
GCGAATTCCAAGCTTGAGTATTCTA
TCGTGTCACCTAAATAACTTGGCGTAATCATGGTCATATCTGTTTCCTGTGTGAA
ATTGTTATCCGCTCACAATTCCACA
CAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGAGTGAG
CTAACTCACATTAATTGCGTTGCGCGATGCTTCCATTTTGTGAGGGTTAATGC-

Figure 5A

TTCGAGAAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACAAGAAT
GCAGTGAAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAA
CCATTATAAGCTGCAATAAACA
AGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTTCAGGGGGAGATGTGG
GAGGTTTTTTAAAGCAAGTAAAACC
TCTACAAATGTGGTAAAATCCGATAAGGATCGATTCCGGAGCCTGAATGGCGAAT
GGACGCGCCCTGTAGCGGCGCATTA
AGCGCGGCGGGTGTGGTGGTTACGCGCACGTGACCGCTACACTTGCCAGCGCCC
TAGCGCCCGCTCCTTTCGCTTTCTTC
CCTTCCTTTCTCGCCACGTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCGGGGGC
TCCCTTTAGGGTTCCGATTTAGTGC
TTTACGGCACCTCGACCCCAAAAAACTTGATTAGGGTGATGGTTCACGTAGTGGG
CCATCGCCCTGATAGACGGTTTTTC
GCCCTTTGACGTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTGG
AACAACACTCAACCCTATCTCGGTC
TATTCTTTTGATTTATAAGGGATTTTGCCGATTTCGGCCTATTGGTTAAAAAATGA
GCTGATTTAACAAAAATTTAACGC
GAATTTTAACAAAATATTAACGCTTACAATTTCGCCTGTGTACCTTCTGAGGCGG
AAAGAACCAGCTGTGGAATGTGTGT
CAGTTAGGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGC
ATGCATCTCAATTAGTCAGCAACCAG
GTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCT
CAATTAGTCAGCAACCATAGTCCCGC
CCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCC
CCATGGCTGACTAATTTTTTTTATT
TATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAGGA
GGCTTTTTTGGAGGCCTAGGCTTTTG
CAAAAAGCTTGATTCTTCTGACACAACAGTCTCGAACTTAAGGCTAGAGCCACCA
TGATTGAACAAGATGGATTGCACGC
AGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAACAG
ACAATCGGCTGCTCTGATGCCGCCG
TGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCTGTC
CGGTGCCCTGAATGAACTGCAGGAC
GAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCCTTGCGCAGCTGTG
CTCGACGTTGTCACTGAAGCGGGAAG
GGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTT
GCTCCTGCCGAGAAAGTATCCATCA
TGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGA
CCACCAAGCGAAACATCGCATCGAG
CGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGATCAGGATGATCTGGACGAA
GAGCATCAGGGGCTCGCGCCAGCCGA
ACTGTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTGAC
CCATGGCGATGCCTGCTTGCCGAATA
TCATGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGT
GGCGGACCGCTATCAGGACATAGCG
TTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCC
TCGTGCTTTACGGTATCGCCGCTCC
CGATTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGCGGGA
CTCTGGGGTTCGAAATGACCGACCAAGCGACGCCCAACCTGCCATCACGATGGC-

Figure 5B

CGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAAGA.
TCCGCGTA-
TGGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAGTTAAGCCAGCCCCGAC
ACCCGCCAACAC
CCGCTGACGCGCCCTGACGGGCTTGTCTGCTCCCGGCATCCGCTTACAGACAAGC
TGTGACCGTCTCCGGGAGCTGCATG
TGTCAGAGGTTTTCACCGTCATCACCGAAACGCGCGAGACGAAAGGGCCTCGTGA
TACGCCTATTTTTATAGGTTAATGT
CATGATAATAATGGTTTCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTGCGC
GGAACCCCTATTTGTTATTTTTCT
AAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCA
ATAATATTGAAAAAGGAAGAGTATG
AGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCTTCC.
TGTTTTTGCTCACCCAGAAACGCT
GGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGA
ACTGGATCTCAACAGCGGTAAGATCC
TTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCT
GCTATGTGGCGCGGTATTATCCCGT
ATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACT
TGGTTGAGTACTCACCAGTCACAGA
AAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACC
ATGAGTGATAACACTGCGGCCAACT
TACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACAT
GGGGGATCATGTAACTCGCCTTGAT
CGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACG
ATGCCTGTAGCAATGGCAACAACGTT
GCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATA
GACTGGATGGAGGCGGATAAAGTTG
CAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATC
TGGAGCCGGTGAGCGTGGGTCTCGC .
GGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCT
ACACGACGGGGAGTCAGGCAACTAT
GGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGG
TAACTGTCAGACCAAGTTTACTCAT
ATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTGAAG
ATCCTTTTTGATAATCTCATGACC
AAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGA
TCAAAGGATCTTCTTGAGATCCTTT
TTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCGCTACCAGCGGTG .
GTTTGTTTGCCGGATCAAGAGCTAC
CAACTCTTTTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGT
CCTTCTAGTGTAGCCGTAGTTAGGC
CACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCTGT
TACCAGTGGCTGCTGCCAGTGGCGA
TAAGTCGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAG
CGGTCGGGCTGAACGGGGGGTTCGT ·
GCACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGC
GTGAGCTATGAGAAAGCGCCACGCTT
CCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGG-

Figure 5C

AGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTC
GGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGG
GGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTACGGTTCCTGGCCTT
TTGCTGGCCTTTTGCTCACATGGCT
CGAC3'

Figure 5D

5'AGATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATC
AATATTGGCTATTGGCCATTGCAT
ACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAATATGACC
GCCATGTTGGCATTGATTATTGAC
TAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAG
TTCCGCGTTACATAACTTACGGTAA
ATGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGAC
GTATGTTCCCATAGTAACGCCAATA
GGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGG
CAGTACATCAAGTGTATCATATGCC
AAGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCC
CAGTACATGACCTTACGGGACTTTC
CTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTGATGCGGTT
TTGGCAGTACACCAATGGGCGTGGA
TAGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGA
GTTTGTTTTGGCACCAAAATCAACG
GGACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCCGTTGACGCAAATGG
GCGGTAGGCGTGTACGGTGGGAGGT
CTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTAGAAGCTTTATTGCG
GTAGTTTATCACAGTTAAATTGCTA
ACGCAGTCAGTGCTTCTGACACAACAGTCTCGAACTTAAGCTGCAGTGACTCTCT
TAATTAACTCCACCAGTCTCACTTC
AGTTCCTTTTGCCTCCACCAGTCTCACTTCAGTTCCTTTTGCATGAAGAGCTCAGA
ATCAAAAGAGGAAACCAACCCCTA
AGATGAGCTTTCCATGTAAATTTGTAGCCAGCTTCCTTCTGATTTTCAATGTTTCT
TCCAAAGGTGCAGTCTCCAAAGAG
ATTACGAATGCCTTGGAAACCTGGGGTGCCTTGGGTCAGGACATCAACTTGGACA
TTCCTAGTTTTCAAATGAGTGATGA
TATTGACGATATAAAATGGGAAAAAACTTCAGACAAGAAAAAGATTGCACAATTC
AGAAAAGAGAAAGAGACTTTCAAGG
AAAAAGATACATATAAGCTATTTAAAAATGGAACTCTGAAAATTAAGCATCTGAA
GACCGATGATCAGGATATCTACAAG
GTATCAATATATGATACAAAAGGAAAAAATGTGTTGGAAAAAATATTTGATTTGA
AGATTCAAGAGAGGGTCTCAAAACC
AAAGATCTCCTGGACTTGTATCAACACAACCCTGACCTGTGAGGTAATGAATGGA
ACTGACCCCGAATTAAACCTGTATC
AAGATGGGAAACATCTAAAACTTTCTCAGAGGGTCATCACACACAAGTGGACCAC
CAGCCTGAGTGCAAAATTCAAGTGC
ACAGCAGGGAACAAAGTCAGCAAGGAATCCAGTGTCGAGCCTGTCAGCTGTCCA
GAGAAAGGGATCCCAGGTGAGTAGGG
CCCGATCCTTCTAGAGTCGAGCTCTCTTAAGGTAGCAAGGTTACAAGACAGGTTT
AAGGAGACCAATAGAAACTGGGCTT
GTCGAGACAGAGAAGACTCTTGCGTTTCTGATAGGCACCTATTGGTCTTACGCGG
CCGCGAATTCCAAGCTTGAGTATTC
TATCGTGTCACCTAAATAACTTGGCGTAATCATGGTCATATCTGTTTCCTGTGTGA
AATTGTTATCCGCTCACAATTCCA
CACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGAGTG
AGCTAACTCACATTAATTGCGTTGCG
CGATGCTTCCATTTTGTGAGGGTTAATGCTTCGAGAAGACATGATAAGATACATT
GATGAGTTTGGACAAACCACAACAAGAATGCAGTGAAAAAAATGCTTTATTTGT-

Figure 6A

GAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAA
CAAGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTTCAGGGGGAGATGT
GGGAGGTTTTTTAAAGCAAGTAAAA
CCTCTACAAATGTGGTAAAATCCGATAAGGATCGATTCCGGAGCCTGAATGGCGA
ATGGACGCGCCCTGTAGCGGCGCAT
TAAGCGCGGCGGGTGTGGTGGTTACGCGCACGTGACCGCTACACTTGCCAGCGC
CCTAGCGCCCGCTCCTTTCGCTTTCT
TCCCTTCCTTTCTCGCCACGTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCGGGG
GCTCCCTTTAGGGTTCCGATTTAGT
GCTTTACGGCACCTCGACCCCAAAAAACTTGATTAGGGTGATGGTTCACGTAGTG
GGCCATCGCCCTGATAGACGGTTTT
TCGCCCTTTGACGTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTG
GAACAACACTCAACCCTATCTCGG
TCTATTCTTTGATTATAAGGGATTTTGCCGATTTCGGCCTATTGGTTAAAAAAT
GAGCTGATTTAACAAAAATTTAAC
GCGAATTTTAACAAAATATTAACGCTTACAATTTCGCCTGTGTACCTTCTGAGGC
GGAAAGAACCAGCTGTGGAATGTGT
GTCAGTTAGGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAA
GCATGCATCTCAATTAGTCAGCAACC
AGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCAT
CTCAATTAGTCAGCAACCATAGTCCC
GCCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCG
CCCCATGGCTGACTAATTTTTTTTA
TTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAGG
AGGCTTTTTTGGAGGCCTAGGCTTT
TGCAAAAAGCTTGATTCTTCTGACACAACAGTCTCGAACTTAAGGCTAGAGCCAC
CATGATTGAACAAGATGGATTGCAC
GCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAAC
AGACAATCGGCTGCTCTGATGCCGC
CGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCTG
TCCGGTGCCCTGAATGAACTGCAGG
ACGAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCCTTGCGCAGCTG
TGCTCGACGTTGTCACTGAAGCGGGA
AGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACC
TTGCTCCTGCCGAGAAAGTATCCAT
CATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTC
GACCACCAAGCGAAACATCGCATCG
AGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGATCAGGATGATCTGGACG
AAGAGCATCAGGGGCTCGCGCCAGCC
GAACTGTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTG
ACCCATGGCGATGCCTGCTTGCCGAA
TATCATGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGT
GTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGC
TTGGCGGCGAATGGGCTGACCGCTTCCTCGTGCTTTACGGTATCGCCGCT
CCCGATTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGCGG
GACTCTGGGGTTCGAAATGACCGAC
CAAGCGACGCCCAACCTGCCATCACGATGGCCGCAATAAAATATCTTTATTTTCA
TTACATCTGTGTGTTGGTTTTTTGT
GTGAAGATCCGCGTATGGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAGT
TAAGCCAGCCCCGACACCCGCCAACACCCGCTGACGCGCCCTGACGGGCT-

Figure 6B

TGTCTGCTCCCGGCATCCGCTTACAGACAAGCTGTGACCGTCTCCGGGAGCTGCA
TGTGTCAGAGGTTTTCACCGTCATCACCGAAACGCGCGAGACGAAAGGGCCTCGT
GATACGCCTATTTTTATAGGTTAAT
GTCATGATAATAATGGTTTCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTGC
GCGGAACCCCTATTTGTTTATTTT
CTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTT
CAATAATATTGAAAAAGGAAGAGTA
TGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCTT
CCTGTTTTTGCTCACCCAGAAACG
CTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATC
GAACTGGATCTCAACAGCGGTAAGAT
CCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTT
CTGCTATGTGGCGCGGTATTATCCC
GTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGA
CTTGGTTGAGTACTCACCAGTCACA
GAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAA
CCATGAGTGATAACACTGCGGCCAA
CTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAAC
ATGGGGGATCATGTAACTCGCCTTG
ATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCA
CGATGCCTGTAGCAATGGCAACAACG
TTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAA
TAGACTGGATGGAGGCGGATAAAGT
TGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAA
TCTGGAGCCGGTGAGCGTGGGTCTC
GCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTAT
CTACACGACGGGGAGTCAGGCAACT
ATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATT
GGTAACTGTCAGACCAAGTTTACTC
ATATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTGA
AGATCCTTTTTGATAATCTCATGA
CCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAA
GATCAAAGGATCTTCTTGAGATCCT
TTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCGCTACCAGCGG
TGGTTTGTTTGCCGGATCAAGAGCT
ACCAACTCTTTTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACT
GTCCTTCTAGTGTAGCCGTAGTTAG
GCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCT
GTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCA
AGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTC
GTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACA
GCGTGAGCTATGAGAAAGCGCCACGC
TTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAG
GAGAGCGCACGAGGGAGCTTCCAGGG
GGAAACGCCTGGTATCTTTATAGTCCTGTCGGGTTTCGCCACCTCTGACTTGAGC
GTCGATTTTTGTGATGCTCGTCAGG
GGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGC
CTTTTGCTGGCCTTTTGCTCACATGG
CTCGAC3'

Figure 6C

5'AGATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATC
AATATTGGCTATTGGCCATTGCAT
ACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAATATGACC
GCCATGTTGGCATTGATTATTGAC
TAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAG
TTCCGCGTTACATAACTTACGGTAA
ATGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGAC
GTATGTTCCCATAGTAACGCCAATA
GGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGG
CAGTACATCAAGTGTATCATATGCC
AAGTCCGCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCC
CAGTACATGACCTTACGGGACTTTC
CTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTGATGCGGTT
TTGGCAGTACACCAATGGGCGTGGA
TAGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGA
GTTTGTTTTGGCACCAAAATCAACG
GGACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCCGTTGACGCAAATGG
GCGGTAGGCGTGTACGGTGGGAGGT
CTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTAGAAGCTTTATTGCG
GTAGTTTATCACAGTTAAATTGCTA
ACGCAGTCAGTGCTTCTGACACAACAGTCTCGAACTTAAGCTGCAGTGACTCTCT
TAATTAACTCCACCAGTCTCACTTC
AGTTCCTTTTGCCTCCACCAGTCTCACTTCAGTTCCTTTTGCATGAAGAGCTCAGA
ATCAAAAGAGGAAACCAACCCCTA
AGATGAGCTTTCCATGTAAATTTGTAGCCAGCTTCCTTCTGATTTTCAATGTTTCT
TCCAAAGGTGCAGTCTCCAAAGAG
ATTACGAATGCCTTGGAAACCTGGGGTGCCTTGGGTCAGGACATCAACTTGGACA
TTCCTAGTTTTCAAATGAGTGATGA
TATTGACGATATAAAATGGGAAAAAACTTCAGACAAGAAAAAGATTGCACAATTC
AGAAAAGAGAAAGAGACTTTCAAGG
AAAAAGATACATAAGCTATTTAAAAATGGAACTCTGAAAATTAAGCATCTGAA
GACCGATGATCAGGATATCTACAAG
GTATCAATATATGATACAAAAGGAAAAAATGTGTTGGAAAAAATATTTGATTTGA
AGATTCAAGAGAGGGTCTCAAAACC
AAAGATCTCCTGGACTTGTATCAACACAACCCTGACCTGTGAGGTAATGAATGGA
ACTGACCCCGAATTAAACCTGTATC
AAGATGGGAAACATCTAAAACTTTCTCAGAGGGTCATCACACACAAGTGGACCAC
CAGCCTGAGTGCAAAATTCAAGTGC
ACAGCAGGGAACAAAGTCAGCAAGGAATCCAGTGTCGAGCCTGTCAGCTGTCCA
GAGAAAGGGATCCACAGGTGAGTAGG
GCCCGATCCTTCTAGAGTCGAGCTCTCTTAAGGTAGCAAGGTTACAAGACAGGTT
TAAGGAGACCAATAGAAACTGGGCT
TGTCGAGACAGAGAAGACTCTTGCGTTTCTGATAGGCACCTATTGGTCTTACGCG
GCCGCGAATTCCAAGCTTGAGTATT
CTATCGTGTCACCTAAATAACTTGGCGTAATCATGGTCATATCTGTTTCCTGTGTG
AAATTGTTATCCGCTCACAATTCC
ACACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGAGT
GAGCTAACTCACATTAATTGCGTTGC
GCGATGCTTCCATTTTGTGAGGGTTAATGCTTCGAGAAGACATGATAAGATACAT
TGATGAGTTTGGACAAACCACAACA AGAATGCAGTGAAAAAAATGC-

Figure 7A

TTTATTTGTGAAATTTGTGATG
CTATTGCTTTATTTGTAACCATTATAAGCTGCAATAA
ACAAGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTTCAGGGGGAGATG
TGGGAGGTTTTTTAAAGCAAGTAAA
ACCTCTACAAATGTGGTAAAATCCGATAAGGATCGATTCCGGAGCCTGAATGGCG
AATGGACGCGCCCTGTAGCGGCGCA
TTAAGCGCGGCGGGTGTGGTGGTTACGCGCACGTGACCGCTACACTTGCCAGCGC
CCTAGCGCCCGCTCCTTTCGCTTTC
TTCCCTTCCTTTCTCGCCACGTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCGGGG
GCTCCCTTTAGGGTTCCGATTTAG
TGCTTTACGGCACCTCGACCCCAAAAAACTTGATTAGGGTGATGGTTCACGTAGT
GGGCCATCGCCCTGATAGACGGTTT
TTCGCCCTTTGACGTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACT
GGAACAACACTCAACCCTATCTCG
GTCTATTCTTTTGATTTATAAGGGATTTTGCCGATTTCGGCCTATTGGTTAAAAAA
TGAGCTGATTTAACAAAAATTTAA
CGCGAATTTTAACAAAATATTAACGCTTACAATTTCGCCTGTGTACCTTCTGAGG
CGGAAAGAACCAGCTGTGGAATGTG
TGTCAGTTAGGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAA
AGCATGCATCTCAATTAGTCAGCAAC
CAGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCA
TCTCAATTAGTCAGCAACCATAGTCC
CGCCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCC
GCCCCATGGCTGACTAATTTTTTTT
ATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAG
GAGGCTTTTTTGGAGGCCTAGGCTT
TTGCAAAAAGCTTGATTCTTCTGACACAACAGTCTCGAACTTAAGGCTAGAGCCA
CCATGATTGAACAAGATGGATTGCA
CGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAA
CAGACAATCGGCTGCTCTGATGCCG
CCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCT
GTCCGGTGCCCTGAATGAACTGCAG
GACGAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCCTTGCGCAGCT
GTGCTCGACGTTGTCACTGAAGCGGG
AAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCAC
CTTGCTCCTGCCGAGAAAGTATCCA
TCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATT
CGACCACCAAGCGAAACATCGCATC
GAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGATCAGGATGATCTGGAC
GAAGAGCATCAGGGGCTCGCGCCAGC
CGAACTGTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGT
GACCCATGGCGATGCCTGCTTGCCGA
ATATCATGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGG
TGTGGCGGACCGCTATCAGGACATA
GCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCT
TCCTCGTGCTTTACGGTATCGCCGC
TCCCGATTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGCG
GGACTCTGGGGTTCGAAATGACCGA
CCAAGCGACGCCCAACCTGCCATCACGATGGCCGCAATAAAATATCTTTATTTTC
ATTACATCTGTGTGTTGGTTTTTTGTGTGAAGATCCGCGTATGGTGCACTCTC-

Figure 7B

AGTACAATCTGCTCTGATGCCGCATAGTTAAGCCAGCCCCGACACCCGCCAA
CACCCGCTGACGCGCCCTGACGGGCTTGTCTGCTCCCGGCATCCGCTTACAGACA
AGCTGTGACCGTCTCCGGGAGCTGC
ATGTGTCAGAGGTTTTCACCGTCATCACCGAAACGCGCGAGACGAAAGGGCCTCG
TGATACGCCTATTTTTATAGGTTAA
TGTCATGATAATAATGGTTTCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTG
CGCGGAACCCCTATTTGTTTATTTT
TCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCT
TCAATAATATTGAAAAAGGAAGAGT
ATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCT
TCCTGTTTTTGCTCACCCAGAAAC
GCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACAT
CGAACTGGATCTCAACAGCGGTAAGA
TCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGT
TCTGCTATGTGGCGCGGTATTATCC
CGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATG
ACTTGGTTGAGTACTCACCAGTCAC
AGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATA
ACCATGAGTGATAACACTGCGGCCA
ACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAA
CATGGGGGATCATGTAACTCGCCTT
GATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACC
ACGATGCCTGTAGCAATGGCAACAAC
GTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTA
ATAGACTGGATGGAGGCGGATAAAG
TTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAA
ATCTGGAGCCGGTGAGCGTGGGTCT
CGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTA
TCTACACGACGGGGAGTCAGGCAAC
TATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCAT
TGGTAACTGTCAGACCAAGTTTACT
CATATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTG
AAGATCCTTTTTGATAATCTCATG
ACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAA
AGATCAAAGGATCTTCTTGAGATCC
TTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCGCTACCAGCG
GTGGTTTGTTTGCCGGATCAAGAGC
TACCAACTCTTTTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATAC
TGTCCTTCTAGTGTAGCCGTAGTTA
GGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCC
TGTTACCAGTGGCTGCTGCCAGTGG
CGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCG
CAGCGGTCGGGCTGAACGGGGGGTT
CGTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTAC
AGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGT
ATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGG
GGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGTTTCGCCACCTCTGACTTGAG
CGTCGATTTTTGTGATGCTCGTCAG
GGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGG
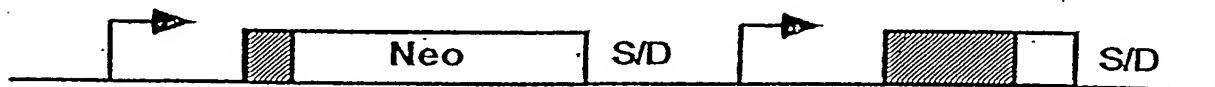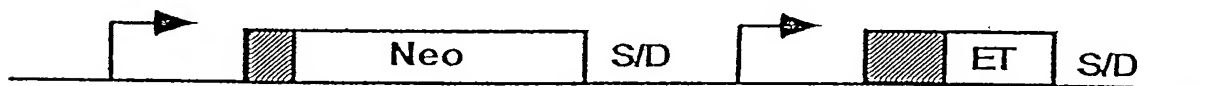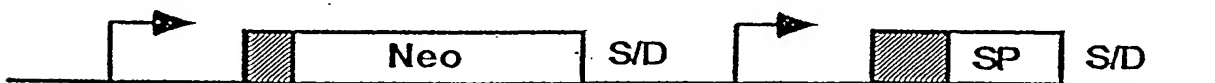CCTTTTGCTGGCCTTTTGCTCACATGGCTCGAC3'
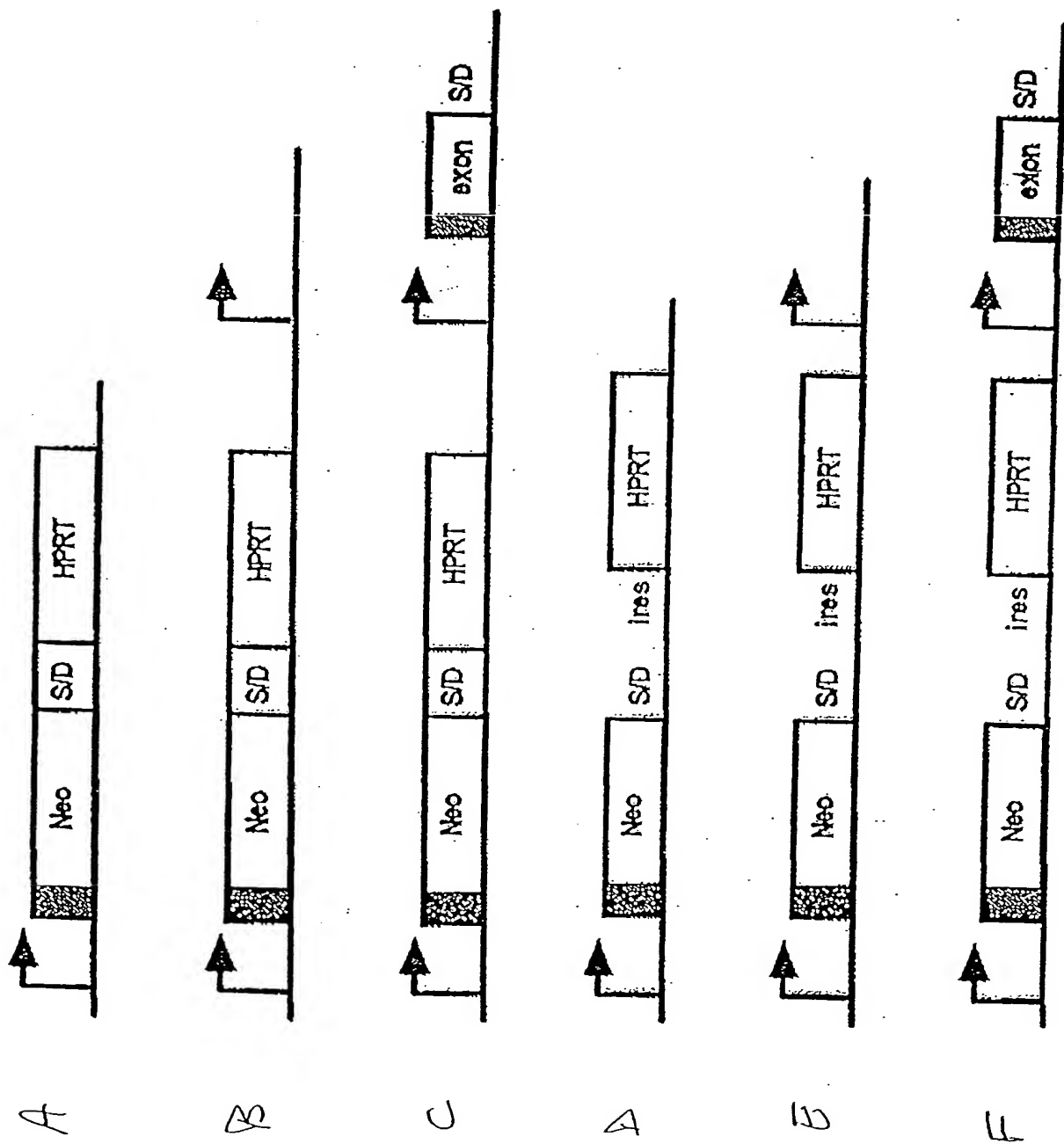
Figure 7C

A

B

C

D

E

F

FIGURE 8

A

B

C

D

E

F

FIGURE 9

FIGURE 10

A

B

C

FIGURE 11

FIGURE 12

Integrate Vector into Genome

Transcript #1
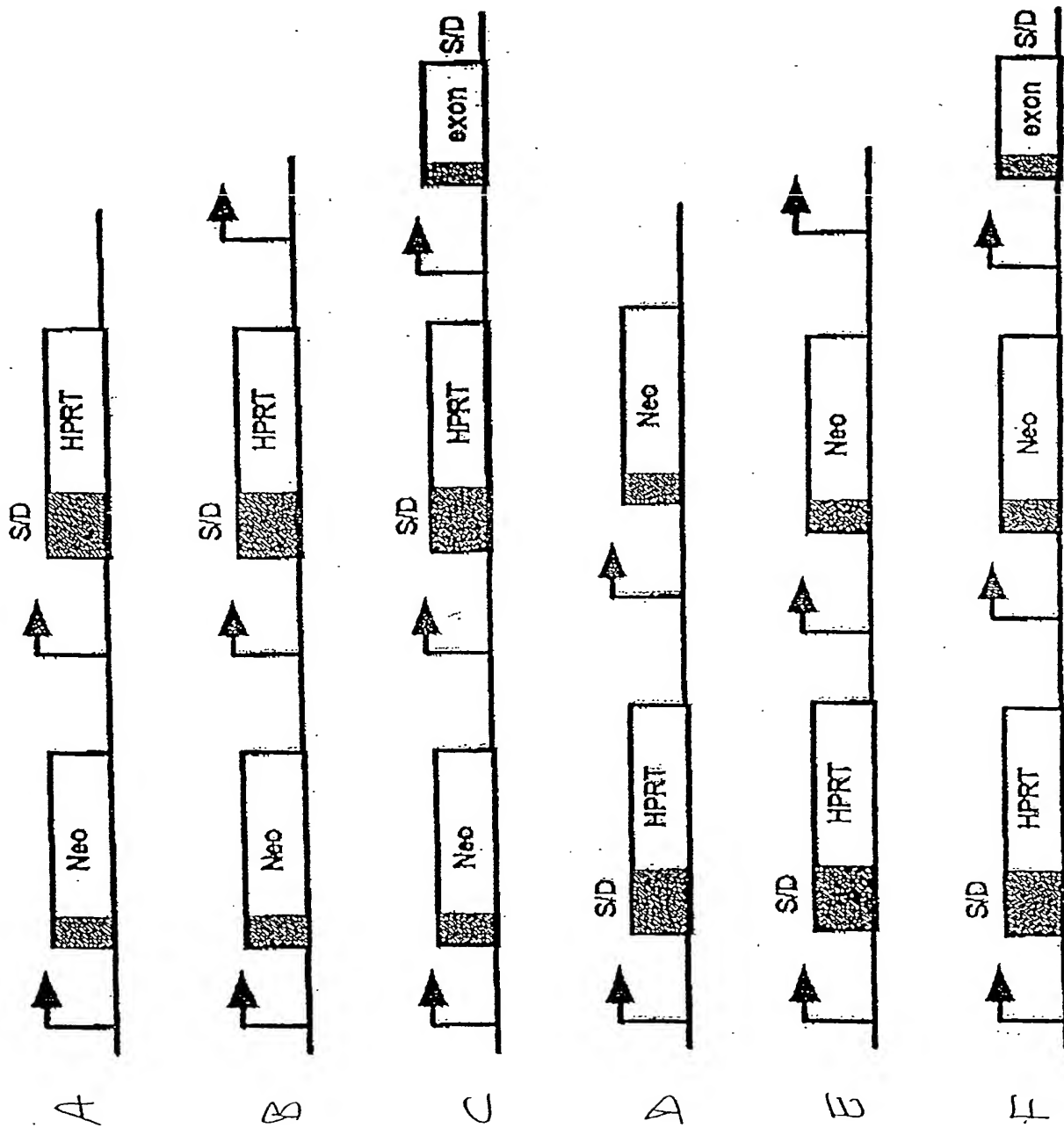
Transcript #2
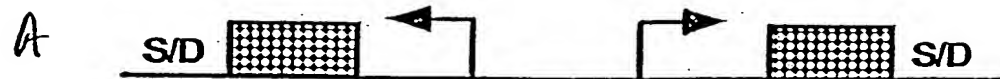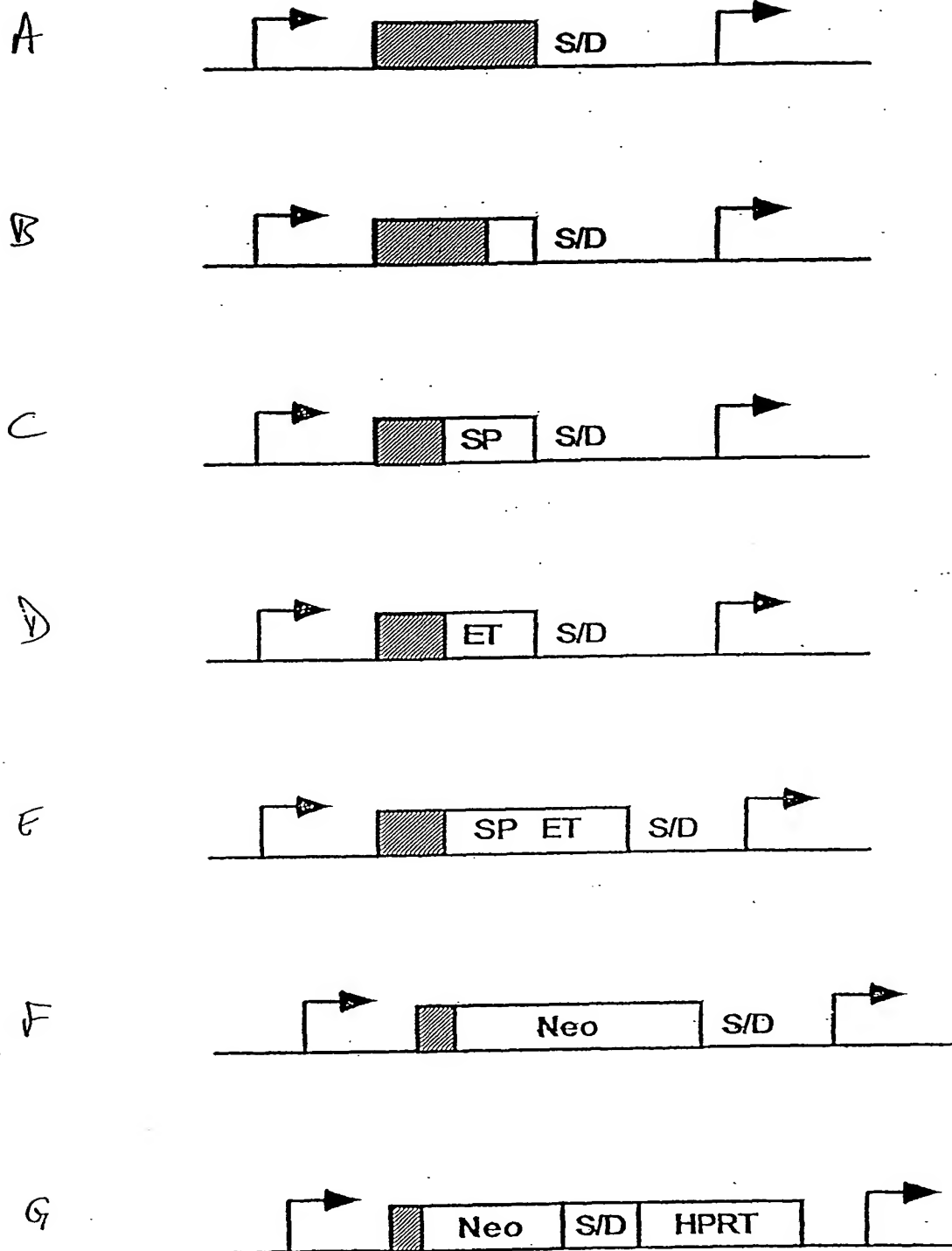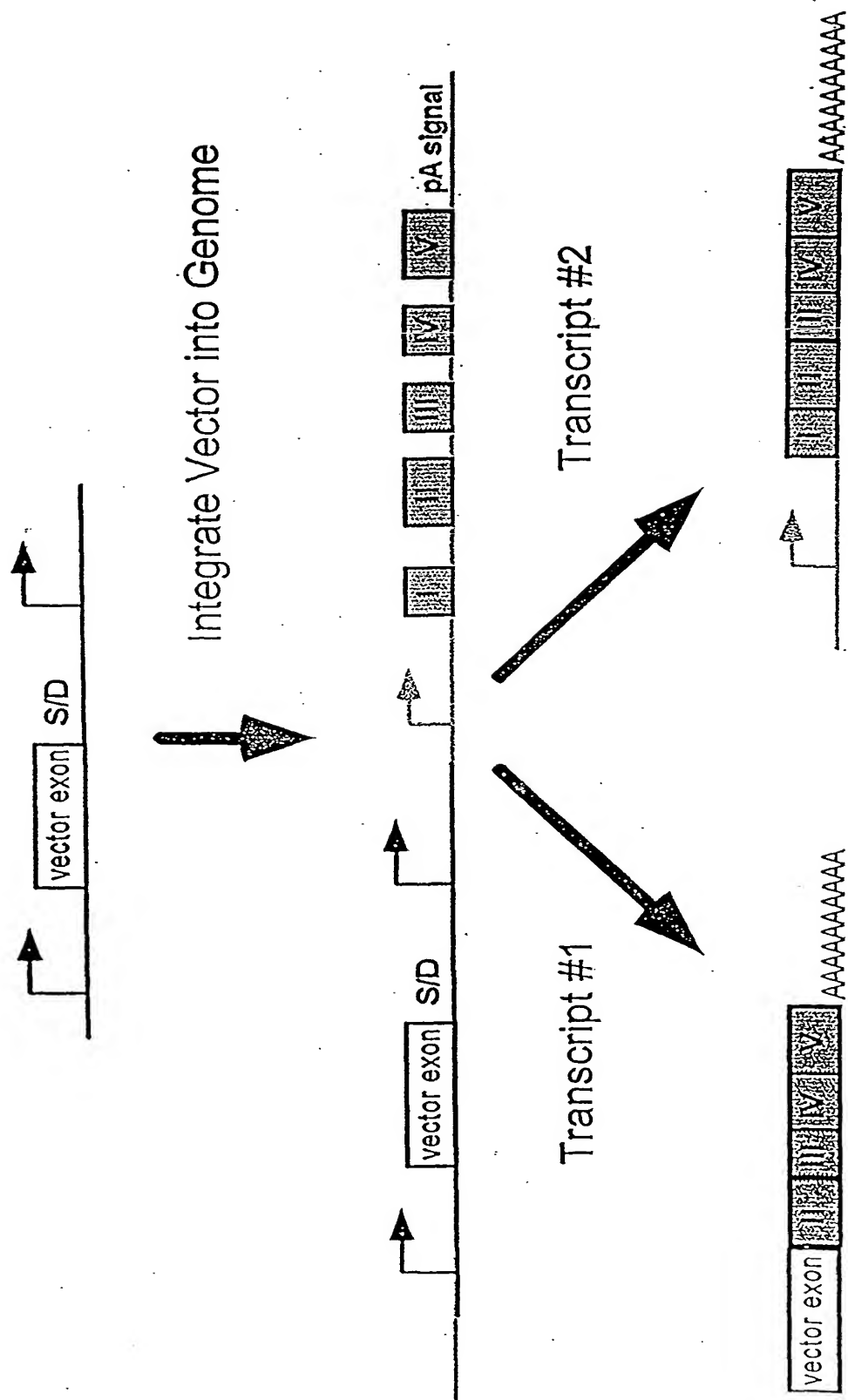
FIGURE 13

AGATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATCAATATTGG
CTATTGGCCATTGCATACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCA
ATATGACCGCCATGTTGGCATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCA
TTAGTTCATAGCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGC
TGACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCA
ATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGCAGTA
CATCAAGTGTATCATATGCCAAGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCC
TGGCATTATGCCCAGTACATGACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTA
GTCATCGCTATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCGGTTT
GACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCAA
AATCAACGGGACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCCGTTGACGCAAATG
GGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGAT
CACTAGAAGCTTTATTGCGGTAGTTTATCACAGTTAAATTGCTAACGCAGTCAGTGCTTCTGA
CACAACAGTCTCGAACTTAAGCTGCAGTGACTCTCTTAAatccaccatggctacaggtgagtactcgGATCTA
GCGCTATATGCGTTGATGCAATTTCTATGCGCACCCGTTCTCGGAGCACTGTCCGACCGCTTT
GGCCGCCGCCCAGTCCTGCTCGCTTCGCTACTTGGAGCCACTATCGACTACGCGATCATGGCG
ACCACACCCGTCCTGTGGATCCTCTACGCCGGACGCATCGTGGCCGGCATCACCGGCGCCACA
GGTGCGGTTGCTGGCGCCTATATCGCCGACATCACCGATGGGGAAGATCGGGCTCGGCACTTC
GGGCTCATGAGCGCTTGTTTCGGCTCTCTTAAGGTAGCAGATCCTTGCTAGAGTCGACCAATT
CTCATGTTTGACAGCTTATCATCGCAGATCCTGAGCTTGTATGGTGCACTCTCAGTACAATCT
GCTCTGCTGCCGCATAGTTAAGCCAGTATCTGCTCCCTGCTTGTGTGTTGGAGGTCGCTGAGT
AGTGCGCGAGCAAAATTTAAGCTACAACAAGGCAAGGCTTGACCGACAATTGCATGAAGAAT
CTGCTTAGGGTTAGGCGTTTTGCGCTGCTTCGCGATGTACGGGCCAGATATACGCGTATCTGA
GGGGACTAGGGTGTGTTTAGGCGCCCAGCGGGGCTTCGGTTGTACGCGGTTAGGAGTCCCCTC
AGGATATAGTAGTTTCGCTTTTGCATAGGGAGGGGGAAATGTAGTCTTATGCAATACACTTGT
AGTCTTGCAACATGGTAACGATGAGTTAGCAACATGCCTTACAAGGAGAGAAAAAGCACCGT
GCATGCCGATTGGTGGAAGTAAGGTGGTACGATCGTGCCTTATTAGGAAGGCAACAGACAGG
TCTGACATGGATTGGACGAACCACTGAATTCCGCATTGCAGAGATAATTGTATTTAAGTGCCT
AGCTCGATACAATAAACGCCATTTGACCATTCACCACATTGGTGTGCACCTCCAAGCTGGGTA
CCAGCTGCTAGCCTCGAGACGCGTGATTTCCTTCGAAGCTtgtcatggttggttcgctaaactgcatcgtcgctgtgtc
ccagaacatgggcatcggcaagaacggggacctgcctggccaccgctcaggaatgaattcagatatttccagagaatgaccacaacctcttcagtaga
aggtaaacagaatctggtgattatgggtaagaagacctggttctccattcctgagaagaatcgaccttaaagggtagaattaatttagttctcagcagagaa
ctcaaggaacctccacaaggagctcattttctttccagaagtctagatgatgccttaaaacttactgaacaaccagaattagcaaataaagtagacatggtct
ggatagttggtggcagttctgtttataaggaagccatgaatcacccaggccatcttaaactatttgtgacaaggatcatgcaagactttgaaagtgacacgttt
tttccagaaattgatttggagaaatataaaacttctgccagaataacccaggtgttctctctgatgtccaggaggagaaaggcattaagtacaaatttgaagtata
tgagaagaatgattaatCGATCTTAAGTTTAATCTTTCCCGGGGGTACCGTCGACTGCGGCCGCGAATTC
CAAGCTTGAGTATTCTATCGTGTCACCTAAATAACTTGGCGTAATCATGGTCATATCTGTTTCC
TGTGTGAAATTGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTA
AAGCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCGATGCTTCCATTT
TGTGAGGGTTAATGCTTCGAGAAGACATGATAAGATACATTGATGAGTTTGGACAAACCACA
ACAAGAATGCAGTGAAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTA
ACCATTATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTT
CAGGGGGAGATGTGGGAGGTTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTAAAATCCG
ATAAGGATCGATTCCGGAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCG
CGGCGGGTGTGGTGGTTACGCGCACGTGACCGCTACACTTGCCAGCGCCCTAGCGCCCGCTCC
TTTCGCTTTCTTCCCTTCCTTTCTCGCCACGTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCGG
GGGCTCCCTTTAGGGTTCCGATTTAGTGCTTTACGGCACCTCGACCCCAAAAAACTTGATTAG
GGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGACGTTGGAG
TCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTGGAACAACACTCAACCCTATCTCGGTC
TATTCTTTTGATTTATAAGGGATTTTGCCGATTTCGGCCTATTGGTTAAAAAATGAGCTGATTT
AACAAAAATTTAACGCGAATTTTAACAAAATATTAACGCTTACAATTTCGCCTGTGTACCTTC
TGAGGCGGAAAGAACCAGCTGTGGAATGTGTGTCAGTTAGGGTGTGGAAAGTCCCCAGGCTC
CCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCAGGTGTGGAAAGT
CCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCATA-

FIGURE 14A

GTCCCGCCCCTAACTCCGCCCATCCCGCCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCC
ATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTATTCC
AGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGCTTGATTCTTCTGACA
CAACAGTCTCGAACTTAAGGCTAGAGCCACCATGATTGAACAAGATGGATTGCACGCAGGTT
CTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAACAGACAATCGGCTGC
TCTGATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGAC
CTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCACGAC
GGGCGTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTGCTATT
GGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGAGAAAGTATCCAT
CATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCA
AGCGAAACATCGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGATCAGGATG
ATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACTGTTCGCCAGGCTCAAGGCGCGC
ATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATGCCTGCTTGCCGAATATCATGGTG
GAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAG
GACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTC
CTCGTGCTTTACGGTATCGCCGCTCCCGATTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACG
AGTTCTTCTGAGCGGGACTCTGGGGTTCGAAATGACCGACCAAGCGACGCCCAACCTGCCAT
CACGATGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAAG
ATCCGCGTATGGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAGTTAAGCCAGCCCCGA
CACCCGCCAACACCCGCTGACGCGCCCTGACGGGCTTGTCTGCTCCCGGCATCCGCTTACAGA
CAAGCTGTGACCGTCTCCGGGAGCTGCATGTGTCAGAGGTTTTCACCGTCATCACCGAAACGC
GCGAGACGAAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTT
TCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCT
AAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATT
GAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCAT
TTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGT
TGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTC
GCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTAT
CCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGG
TTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGC
AGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGG
ACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTG
GGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAA
TGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAAT
TAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCT
GGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCA
CTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAAC
TATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAAC
TGTCAGACCAAGTTTACTCATATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAG
GATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGAGTTTTCGTT
CCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTTCTGCG
CGTAATCTGCTGCTTGCAAACAAAAAAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCA
AGAGCTACCAACTCTTTTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGT
CCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCT
CGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTT
GGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGCA
CACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGA
GAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCG
GAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTC
GGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGGAGCCTA
TGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCAC
ATGGCTCGAC

FIGURE 14B

GATCTTCAATATTGGCCCATTAGCCATATTATTCATTGGTTATATAGCATAAATCAATATTGGCT
ATTGGCCATTGCATACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAAT
ATGACCGCCATGTTGGCATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATT
AGTTCATAGCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTG
ACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAAT
AGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGCAGTACA
TCAAGTGTATCATATGCCAAGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTG
GCATTATGCCCAGTACATGACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGT
CATCGCTATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCGGTTTGA
CTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCAAAA
TCAACGGGACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCCGTTGACGCAAATGGG
CGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCA
CTGAATTCTGACGACCTACTGATTAACGGCCATAGAGGCCTCCTGCAGATCACTAGAAGCTTT
ATTGCGGTAGTTTATCACAGTTAAATTGCTAACGCAGTCAGTGCTTCTGACACAACAGTCTCG
AACTTAAGCTGCAGTGACTCTCTTAAatccaccatggctacagGTGAGTACTCGCTACCTTAAGAGAGG
CCTATCTGGCCAGTTAGCAGTCGAAGAAAGAAGTTTAAGAGAGCCGAAACAAGCGCTCATGA
GCCCGAAGTGGCGAGCCCGATCTTCCCCATCGGTGATGTCGGCGATATAGGCGCCAGCAACC
GCACCTGTGGCGCCGGTGATGCCGGCCACGATGCGTCCGGCGTAGAGGATCCACAGGACGGG
TGTGGTCGCCATGATCGCGTAGTCGATAGTGGCTCCAAGTAGCGAAGCGAGCAGGACTGGGC
GGCGGCCAAAGCGGTCGGACAGTGCTCCGAGAACGGGTGCGCATAGAAATTGCATCAACGCA
TATAGCGCTAGATCCTTGCTAGAGTCGAGATCTGTCGAGCCATGTGAGCAAAAGGCCAGCAA
AAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGAC
GAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATA
CCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGG
ATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTAT
CTCAGTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCC
GACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCG
CCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGA
GTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCT
GCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCG
CTGGTAGCGGTGGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAA
GAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCACGTTAAGGG
ATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTatcggtgtgaaataccgcacagatgc
ggcgataccgtaaagcacgaggaagcggtcagcccattcgccgccaagctcttcagcaatatcacgggtagccaacgctatgtcctgatagcggtccgc
cacacccagccggccacagtcgatgaatccagaaaagcggccattttccaccatgatattcggcaagcaggcatcgccatgggtcacgacgagatcctc
gccgtcgggcatgctcgccttgagcctggcgaacagttcggctggcgcgagccctgatgctcttcgtccagatcatcctgatcgacaagaccggcttcca
tccgagtacgtgctcgctcgatgcgatgtttcgcttggtggtcgaatgggcaggtagccggatcaagcgtatgcagccgccgcattgcatcagccatgatg
gatactttctcggcaggagcaaggtgagatgacaggagatcctgccccggcacttcgcccaatagcagccagtcccttcccgcttcagtgacaacgtcga
gcacagctgcgcaaggaacgcccgtcgtggccagccacgatagccgcgctgcctcgtcttgcagttcattcagggcaccggacaggtcggtcttgacaa
aaagaaccgggcgcccctgcgctgacagccggaacacggcggcatcagagcagccgattgtctgttgtgcccagtcatagccgaatagcctctccaccc
aagcggccggagaacctgcgtgcaatccatcttgttcaatcatgcgaaacgatcctcatcctgtctcttgatcagagcttgatccctgcgccatcagatctt
ggcggcgagaaagccatccagtttactttgcagggcttgtcaaccttaccagatAAAAGTGCTCATCATTGGAAAAACGTTCAA
TTcTGAGGCGGAAAGAACCAGCTGTGGAATGTGTGTCAGTTAGGGTGTGGAAAGTCCCCAGG
CTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCAGGTGTGGAA
AGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACC
ATAGTCCCGCCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCG
CCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTA
TTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGCTTGATTCTTCT
GACACAACAGTCTCGAACTTAAGGCTAGAGCCACCATGATTGAACAAGATGGATTGCACGCA
GGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAACAGACAATCGG
CTGCTCTGATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGAC
CGACCTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCA
CGACGGGCGTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTG—

CTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGAGAAAGTA
TCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGAC
CACCAAGCGAAACATCGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGATCA
GGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACTGTTCGCCAGGCTCAAGG
CGCGCATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATGCCTGCTTGCCGAATATCA
TGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCT
ATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGAC
CGCTTCCTCGTGCTTTACGGTATCGCCGCTCCCGATTCGCAGCGCATCGCCTTCTATCGCCTTC
TTGACGAGccaTTCtgatggaggtagCGGCCGCTAACCTGGTTGCTGACTAATTGAGATGCATGCTTT
GCATACTTCTGCCTGCTGGGGAGCCTGGGGACTTTCCACACCCTAACTGACACACATTCCACA
GCTGGTTCTTTCCGCCTCAGAAGGTACACAGGCGAAATTGTAAGCGTTAATATTTTGTTAAAA
TTCGCGTTAAATTTTTGTTAAATCAGCTCATTTTTTAACCAATAGGCCGAAATCGGCAAAATC
CCTTATAAATCAAAAGAATAGACCGAGATAGGGTTGAGTGTTGTTCCAGTTTGGAACAAGAG
TCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGAAAAACCGTCTATCAGGGCGATG
GCCCAC

FIGURE 15B

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATCAATATTGGCT
ATTGGCCATTGCATACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAAT
ATGACCGCCATGTTGGCATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATT
AGTTCATAGCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTG
ACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAAT
AGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGCAGTACA
TCAAGTGTATCATATGCCAAGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTG
GCATTATGCCCAGTACATGACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGT
CATCGCTATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCGGTTTGA
CTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCAAAA
TCAACGGGACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCCGTTGACGCAAATGGG
CGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTcgtttagtgaaccgtCAGATCACTAGAA
GCTTTATTGCGGTAGTTTATCACAGTTAAATTGCTAACGCAGTCAGTGCTTCTGACACAACAG
TCTCGAACTTAAGCTGCAGTGACTCTCTTAAatccaccatggctacagGTGAGTACTCGCTACCTTAAG
AGAGGCCTATCTGGCCAGTTAGCAGTCGAAGAAAGAAGTTTAAGAGAGCCGAAACAAGCGCT
CATGAGCCCGAAGTGGCGAGCCCGATCTTCCCCATCGGTGATGTCGGCGATATAGGCGCCAG
CAACCGCACCTGTGGCGCCGGTGATGCCGGCCACGATGCGTCCGGCGTAGAGGATCCACAGG
ACGGGTGTGGTCGCCATGATCGCGTAGTCGATAGTGGCTCCAAGTAGCGAAGCGAGCAGGAC
TGGGCGGCGGCCAAAGCGGTCGGACAGTGCTCCGAGAACGGGTGCGCATAGAAATTGCATCA
ACGCATATAGCGCTAGATCCTTGCTAGAGTCGAGATCTGTCGAGCCATGTGAGCAAAAGGCC
AGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTCCATAGGCTCCGCCCC
CCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATA
AAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCT
TACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGT
AGGTATCTCAGTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTT
CAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGAC
TTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGC
TACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTG
CGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAA
CCACCGCTGGTAGCGGTGGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGA
TCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCACGT
TAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTatcggtgtgaaataccg
cacagatgcgtaaggagaaaataccgcatcaggaaattgtaagcgttaataattcagaagaactcgtcaagaaggcgatagaaggcgatgcgctgcgaa
tcgggagcggcgataccgtaaagcacgaggaagcggtcagcccattcgccgccaagctcttcagcaatatcacgggtagccaacgctatgtcctgatag
cggtccgccacacccagccggccacagtcgatgaatccagaaaagcggccattttccaccatgatattcggcaagcaggcatcgccatgggtcacgacg
agatcctcgccgtcgggcatgctcgccttgagcctggcgaacagttcggctggcgcgagcccctgatgctcttcgtccagatcatcctgatcgacaagacc
ggcttccatccgagtacgtgctcgctcgatgcgatgtttcgcttggtggtcgaatgggcaggtagccggatcaagcgtatgcagccgccgcattgcatcag
ccatgatggatactttctcggcaggagcaaggtgagatgacaggagatcctgccccggcacttcgcccaatagcagccagtcccttcccgcttcagtgaca
acgtcgagcacagctgcgcaaggaacgcccgtcgtggccagccacgatagccgcgctgcctcgtcttgcagttcattcagggcaccggacaggtcggtc
ttgacaaaaagaaccgggcgcccctgcgctgacagccggaacacggcggcatcagagcagccgattgtctgttgtgcccagtcatagccgaatagcctc
tccacccaagcggccggagaacctgcgtgcaatccatcttgttcaatcatgcgaaacgatcctcatcctgtctcttgatcagagcttgatccctgcgccatc
agatccttggcggcgagaaagccatccagtttactttgcagggcttgtcaaccttaccagatAAAAGTGCTCATCATTGGAAAACGT
TCAATTcTGAGGCGGAAAGAACCAGCTGTGGAATGTGTGTCAGTTAGGGTGTGGAAAGTCCCC
AGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCAGGTGTG
GAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCA
ACCATAGTCCCGCCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCT
CCGCCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAG
CTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGCTTGATTCT
TCTGACACAACAGTCTCGAACTTAAGGCTAGAGCCACCATGATTGAACAAGATGGATTGCAC
GCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAACAGACAAT
CGGCTGCTCTGATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAA
GACCGACCTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGG
CCACGACGGGCGTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGG
CTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGAGAAA-

FIGURE 16A

GTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTC
GACCACCAAGCGAAACATCGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGA
TCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACTGTTCGCCAGGCTCA
AGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATGCCTGCTTGCCGAAT
ATCATGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGTGGCGGAC
CGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGC
TGACCGCTTCCTCGTGCTTTACGGTATCGCCGCTCCCGATTCGCAGCGCATCGCCTTCTATCGC
CTTCTTGACGAGccaTTCtgctggatggCTacAGGTcgcagccctggcgtcgtgattagtgatgatgaaccaggttatgaccttgattta
ttttgcatacctaatcattatgctgaggatttggaaagggtgtttattcctcatggactaattatggacaggactgaacgtcttgctcgagatgtgatgaaggag
atgggaggccatcacattgtagccctctgtgtgctcaaggggggctataaattctttgctgacctgctggattacatcaaagcactgaatagaaatagtgata
gatccattcctatgactgtagatttatcagactgaagagctattgtaatgaccagtcaacaggggacataaaagtaattggtggagatgatctctcaacttta
actggaaagaatgtcttgattgtggaagatataattgacactggcaaaacaatgcagactttgctttccttggtcaggcagtataatccaaagatggtcaagg
tcgcaagcttgctggtgaaaaaggaccccacgaagtgttggatataagccagactttgttggatttgaaattccagacaagtttgttgtaggatatgccccttga
ctataatgaatacttcagggatttgaatcatgtttgtgtcattagtgaaactggaaaagcaaaatacaaagcctaaGCGGCCGCTAACCTGGT
TGCTGACTAATTGAGATGCATGCTTTGCATACTTCTGCCTGCTGGGGAGCCTGGGGACTTTCC
ACACCCTAACTGACACACATTCCACAGCTGGTTCTTTCCGCCTCAGAAGGTACACAGGCGAAA
TTGTAAGCGTTAATATTTTGTTAAAATTCGCGTTAAATTTTTGTTAAATCAGCTCATTTTTTAA
CCAATAGGCCGAAATCGGCAAAATCCCTTATAAATCAAAAGAATAGACCGAGATAGGGTTGA
GTGTTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGG
CGAAAAACCGTCTATCAGGGCGATGGCCCAC

FIGURE 16B

A

B

C

D

E

F

G

Figure 17

Figure 18

Figure 19
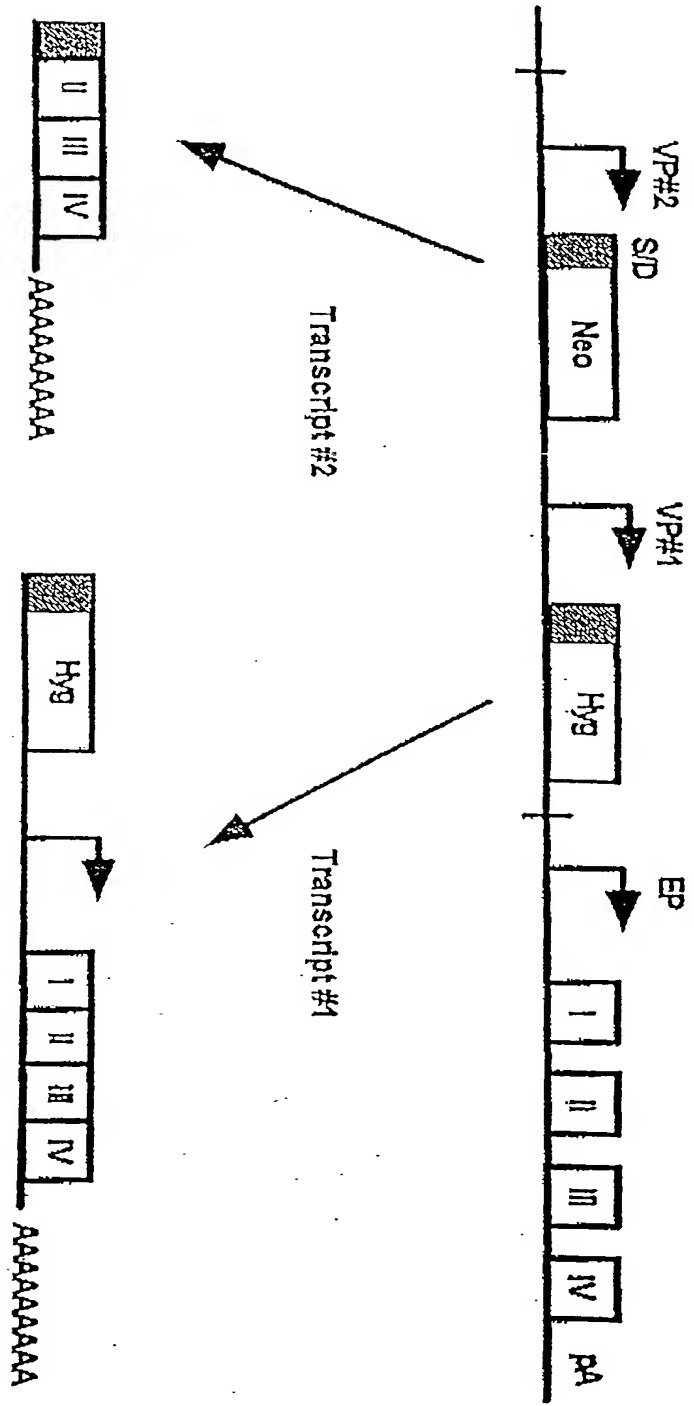
Figure 20A

Figure 20B

A)

VP#2   S/D   HPRT   VP#1

                                            Neo

B)

VP#3   S/D   VP#2   S/D   HPRT   VP#1

                                   Neo
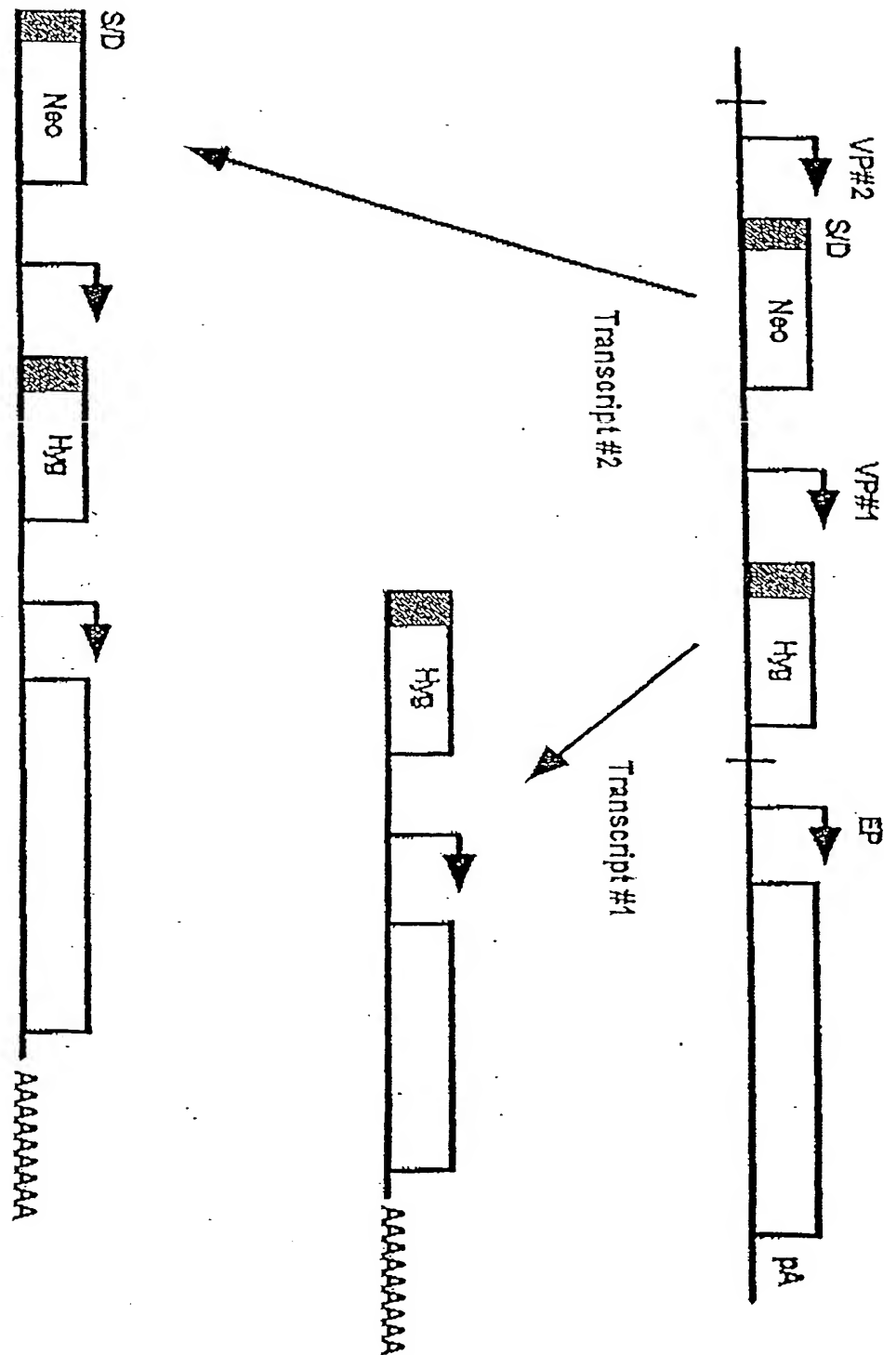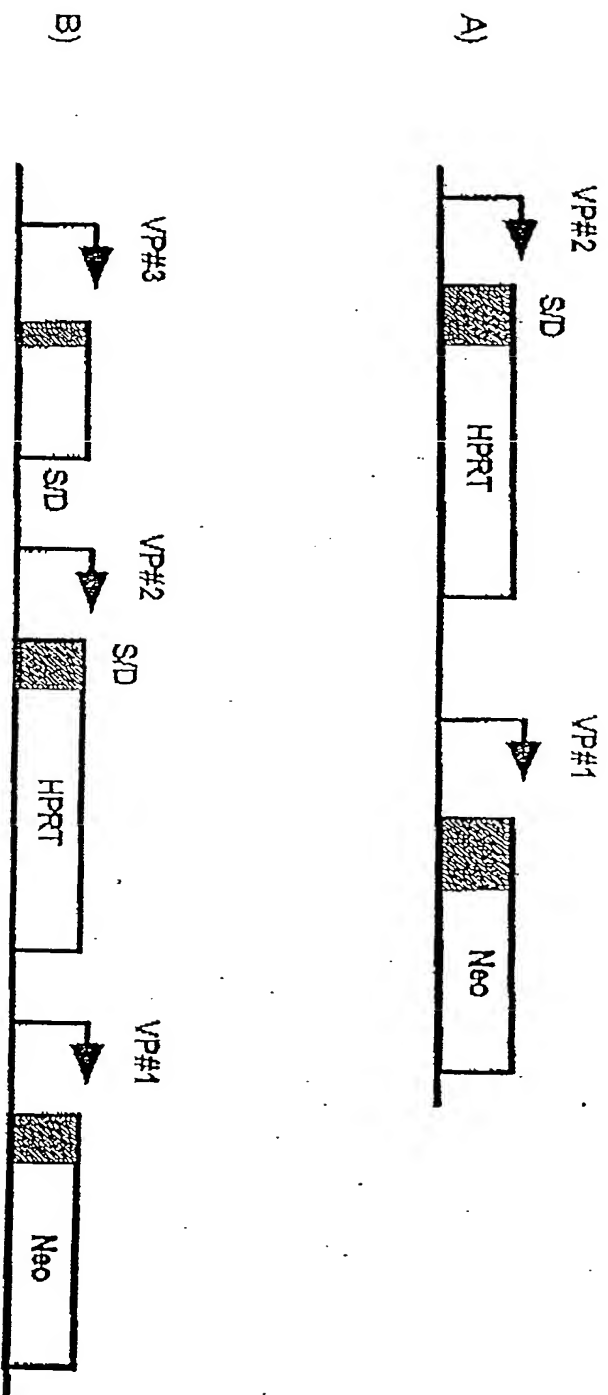
Figure 21

Figure 22

VP #4   VP #3   VP #2   VP #1
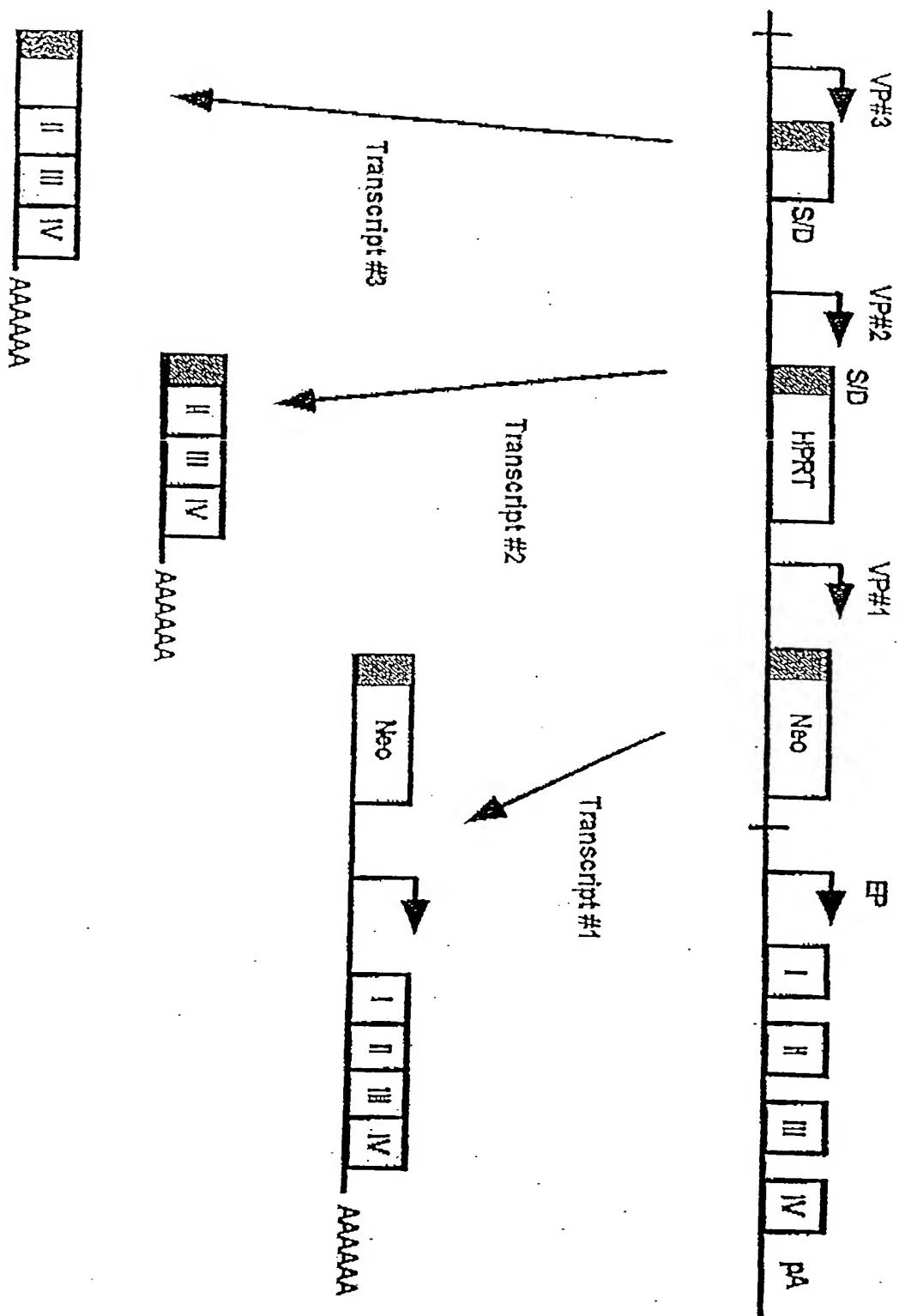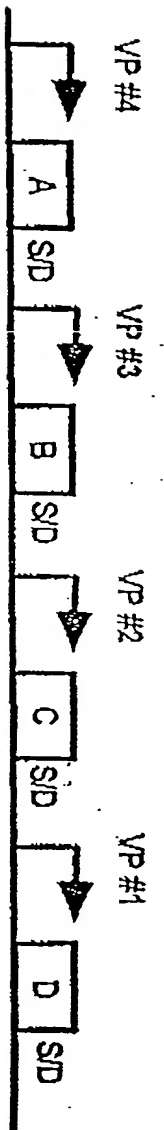
A) Exon A and Flanking Intron

5' UTR   ACCCAG GTGATG   Vector Intron

B) Exon B and Flanking Intron

5' UTR   ACCATGCAG GTGATG   Vector Intron

C) Exon C and Flanking Intron

5' UTR   ACCATGGCAG GTGATG   Vector Intron

D) Exon D and Flanking Intron

5' UTR   ACCATGGGCCAG GTGATG   Vector Intron

Figure 23

Figure 24

A [promoter →] [▨] DNA Binding Domain | S/D

B [promoter →] [▨] DNA Binding Domain | S/D [promoter →] [▨] Neo

C [promoter →] [▨] Activation Domain | S/D

D [promoter →] [▨] Activation Domain | S/D [promoter →] [▨] Neo

FIGURE 25

Gene A

BD S/D I II III pA

Gene B

AD S/D I II III pA

Transcription and Splicing

BD II III AAAAAAA

AD II III AAAAAAA

Translation

BD

AD

Dectection of
Protein Interaction

AD

Transcription

BD

RS   Reporter Gene

FiGURE 26

FIGURE 27

Transposase

Transfect

Assay for Protein Expression

or

Recover Vector Tagged Transcripts

FIGURE 28

CACCTAAATTGTAAGCGTTAATATTTTGTTAAAATTCGCGTTAAATTTTTGT
TAAATCAGCTCATTTTTTAACCAATAGGCCGAAATCGGCAAAATCCCTTAT
AAATCAAAAGAATAGACCGAGATAGGGTTGAGTGTTGTTCCAGTTTGGAA
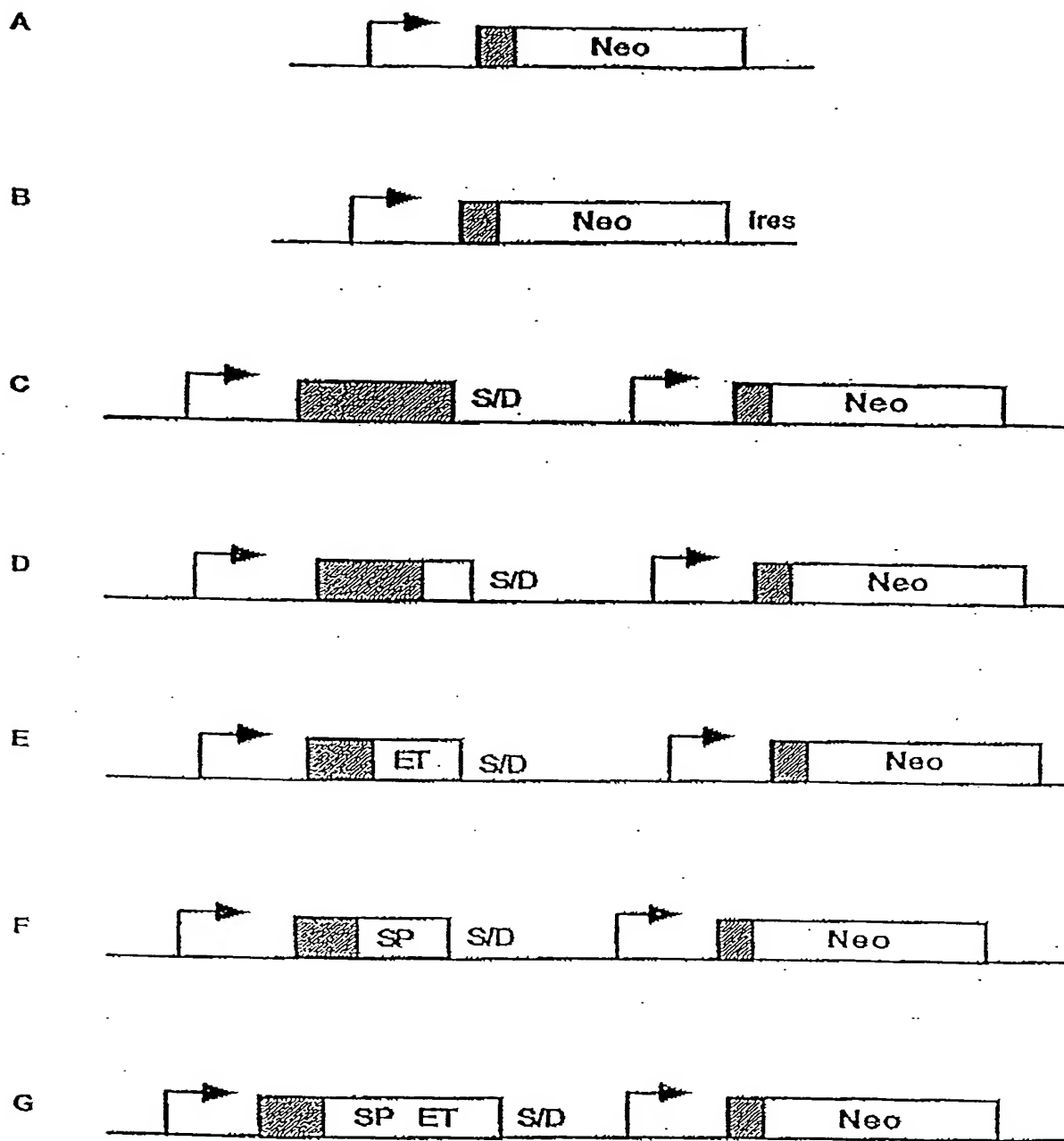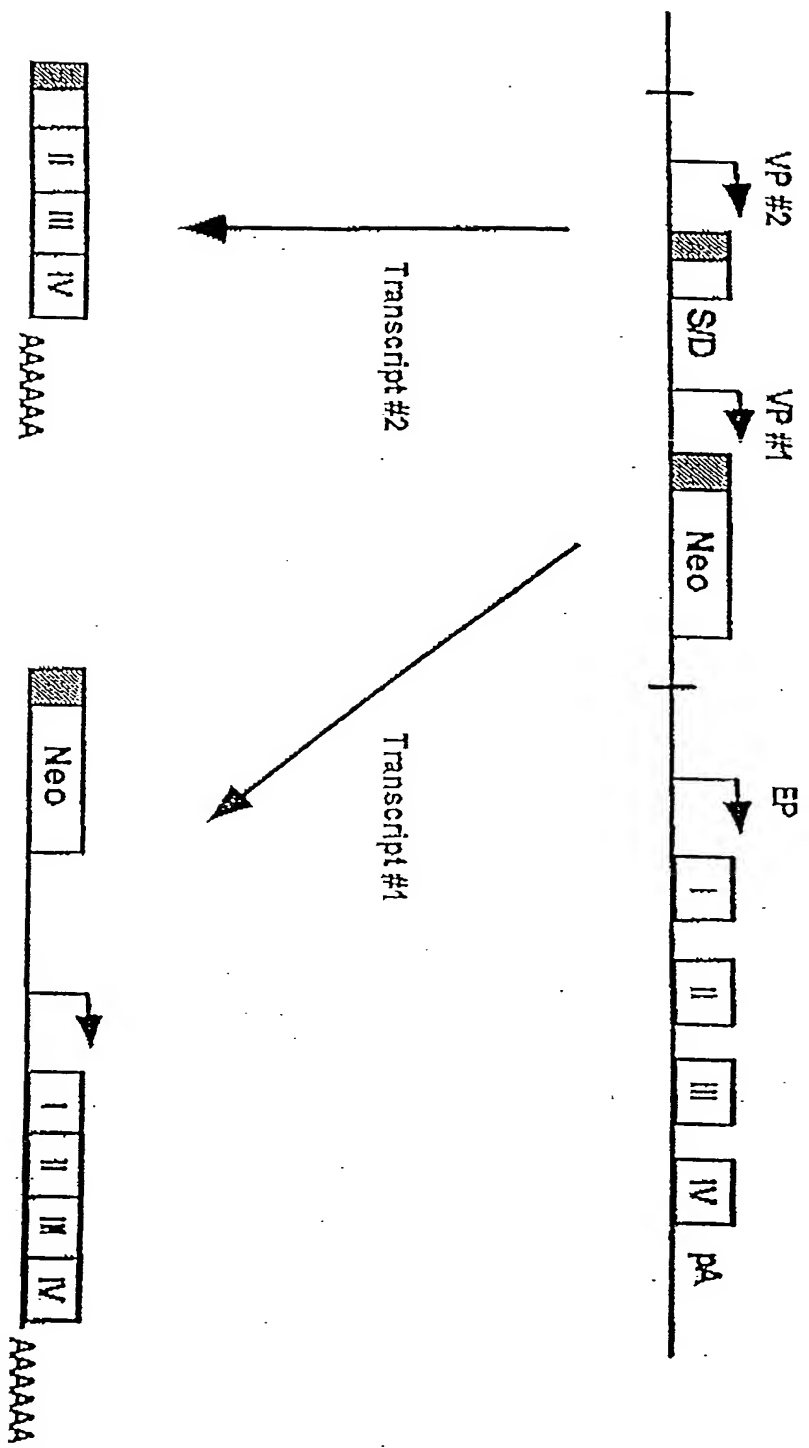CAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGAAAAA
CCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCTAATCAAGTT
TTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCTAAAGGGAGC
CCCCGATTTAGAGCTTGACGGGGAAAGCCGGCGAACGTGGCGAGAAAGGA
AGGGAAGAAAGCGAAAGGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCG
GTCACGCTGCGCGTAACCACCACACCCGCCGCGCTTAATGCGCCGCTACAG
GGCGCGTCCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATC
GGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTG
CAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTGTA
AAACGACGGCCAGTGAATTGTAATACGACTCACTATAGGGCGAATTGGGT
ACaattcaattcgtcgacctcgaaattctaccgggtaggggaggcgcttttcccaaggcagtctggagcatgcgctttag
cagccccgctgggcacttggcgctacacaagtggcctctggcctcgcacacattccacatccaccggtaggcgccaacc
ggctccgttctttggtggccccttcgcgccaccttctactcctcccctagtcaggaagttcccccccgccccgcanctcgcg
tcgtgcaggacgtgacaaatggaaatagcacgtctcactagtctcgtgcagatggacaagcaccgctgagcaatggagc
gggtaggcctttggggcagcggccaatagcagctttgctccttcgctttctgggctcagaggctggnaaggggtgggtcc
ggggcgggctcaggggcgggctcaggggcggggcgggcgcccgaaggtcctccggaggcccggcattctgcacg
cttcaaaagcgcacgtctgccgcgctgttctcctcttcctcatctccgggcctttcgacctgcatccatctagatctcgagca
gctgaagcttaccatgaccgagtacaagcccacggtgcgcctcgccacccgcgacgacgtccccgggccgtacgcac
cctcgccgccgcgttcgccgactaccccgccacgcgccacaccgtcgacccggaccgccacatcgagcgggtcaccga
gctgcaagaactcttcctcacgcgcgtcgggctcgacatcggcaaggtgtgggtcgcggacgacggcgccgcggtggc
ggtctggaccacgccggagagcgtcgaagcggggggcggtgttcgccgagatcggcccgcgcatggccgagttgagcg
gttcccggctggccgcgcagcaacagatggaaggcctcctggcgccgcaccgggcccaaggagcccgcgtggttcctt
ggcccaccgtcgggcgtcttcgcccgaccaccagggcaagggtctggcaagcgccgtcgtgctccccggagtggagg
cggccgagcgcgccgggggtgcccgccttcctggagacctccgcgccccgcaacctcccccttctacgagcggctcggctt
caccgtcaccgccgacgtcgaggtgcccgaaggaccgcgcacctggtgcatgacccgcaagcccggtgcctgacgcc
cgccccacgacccgcagcgcccgaccgaaaggagcgcacgacccccatgcatcgatggcactgggcaggtaagtatca
aggttagcGATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGC
ATAAATCAATATTGGCTATTGGCCATTGCATACGTTGTATCTATATCATAAT
ATGTACATTTATATTGGCTCATGTCCAATATGACCGCCATGTTGGCATTGA
TTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGC
CCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGC
TGACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCC
ATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTA
CGGTAAACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTCCG
CCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAG
TACATGACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTC
ATCGCTATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGA
TAGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAAT
GGGAGTTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAAC
AACTGCGATCGCCCGCCCCGTTGACGCAAATGGGCGGTAGGCGTGTACGG
TGGGAGGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTAGA
AGCTTTATTGCGGTAGTTTATCACAGTTAAATTGCTAACGCAGTCAGTGCT
TCTGACACAACAGTCTCGAACTTAAGCTGCAGTGACTCTCTtaattaaccaccgctac
aggtgagtactcgGATCTGCTACCTTAAgagaggcctatctggccagttagcagtcgaagaaagaagtttaa
GAGAGCCGAAACAAGCGCTCATGAGCCCGAAGTGGCGAGCCCGATCTTCC
CCATCGGTGATGTCGGCGATATAGGCGCCAGCAACCGCACCTGTGGCGCC-

FIGURE 29A

GGTGATGCCGGCCACGATGCGTCCGGCGTAGAGGATCCACAGGACGGGTG
TGGTCGCCATGATCGCGTAGTCGATAGTGGCTCCAAGTAGCGAAGCGAGC
AGGACTGGGCGGCGGCCAAAGCGGTCGGACAGTGCTCCGAGAACGGGTGC
GCATAGAAATTGCATCAACGCATATAGCGCTAGATCCTTGCTAGAGTCGAG
GCCGCCACCGCGGTGGAGCTCCAGCTTTTGTTCCCTTTAGTGAGGGTTAAT
TTCGAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGTGAAATTGTTA
TCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAG
CCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCAC
TGCCCGCTTTCCAGTCGGGAAACCTGTCGTGCCAGCTGCATTAATGAATCG
GCCAACGCGCGGGGAGAGGCGGTTTGCGTATTGGGCGCTCTTCCGCTTCCT
CGCTCACTGACTCGCTGCGCTCGGTCGTTCGGCTGCGGCGAGCGGTATCAG
CTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAGGGGATAACGCA
GGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAA
AGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATC
ACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAA
AGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCG
ACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTG
GCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTT
CGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGC
GCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTA
TCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGT
AGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAG
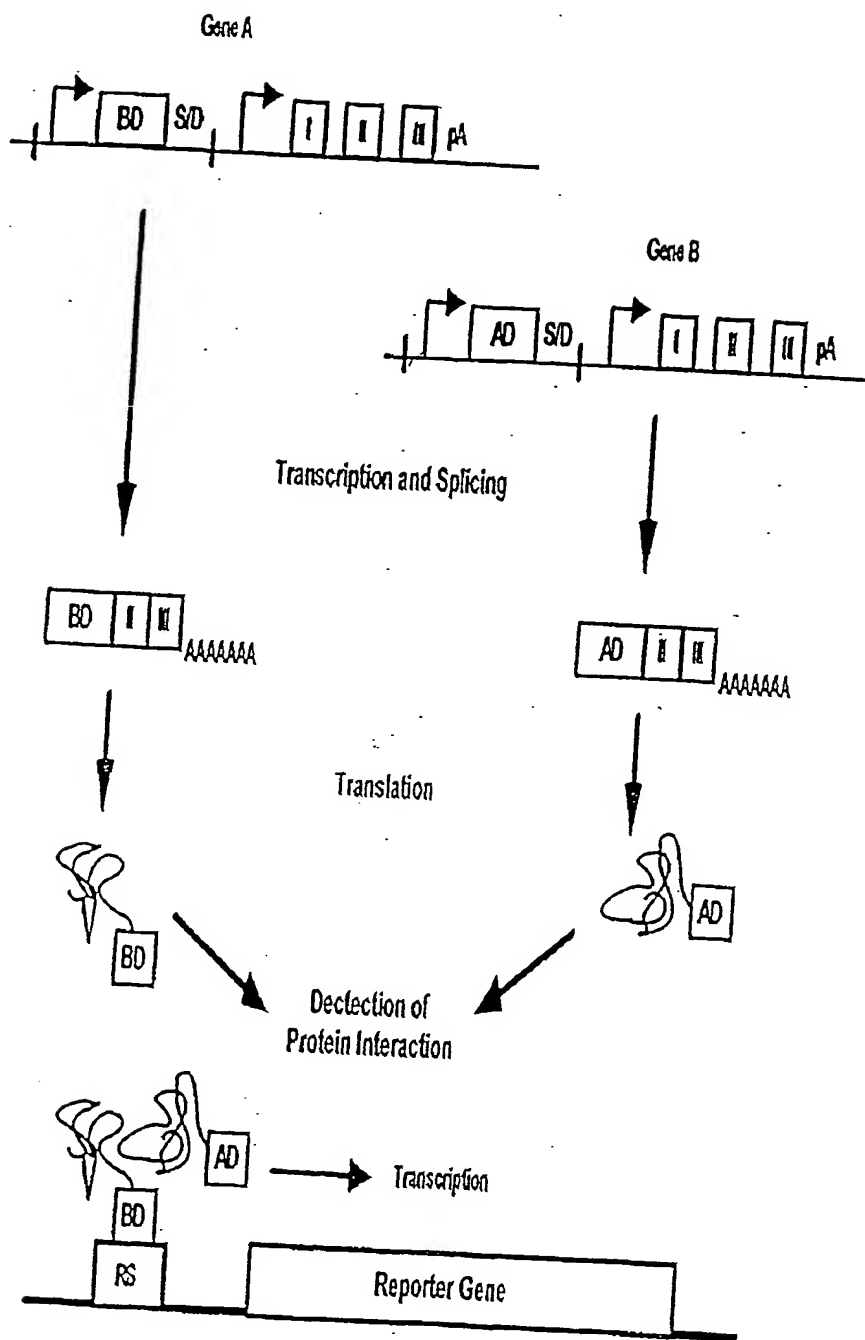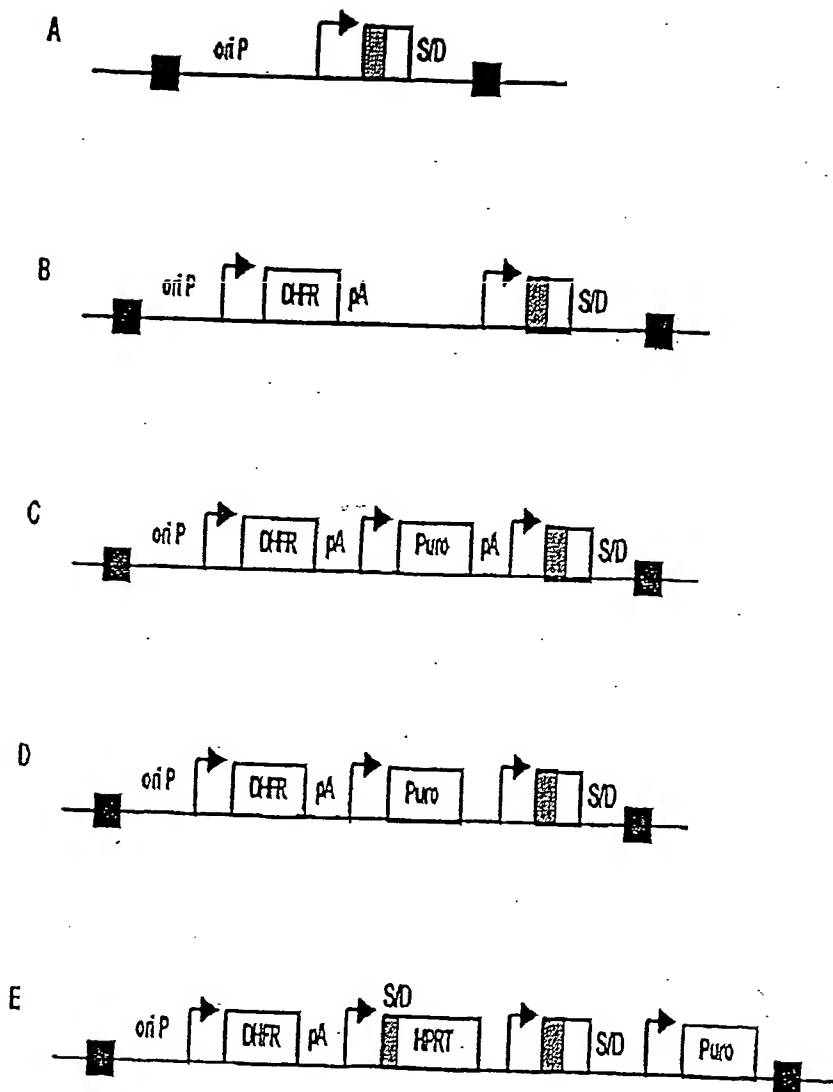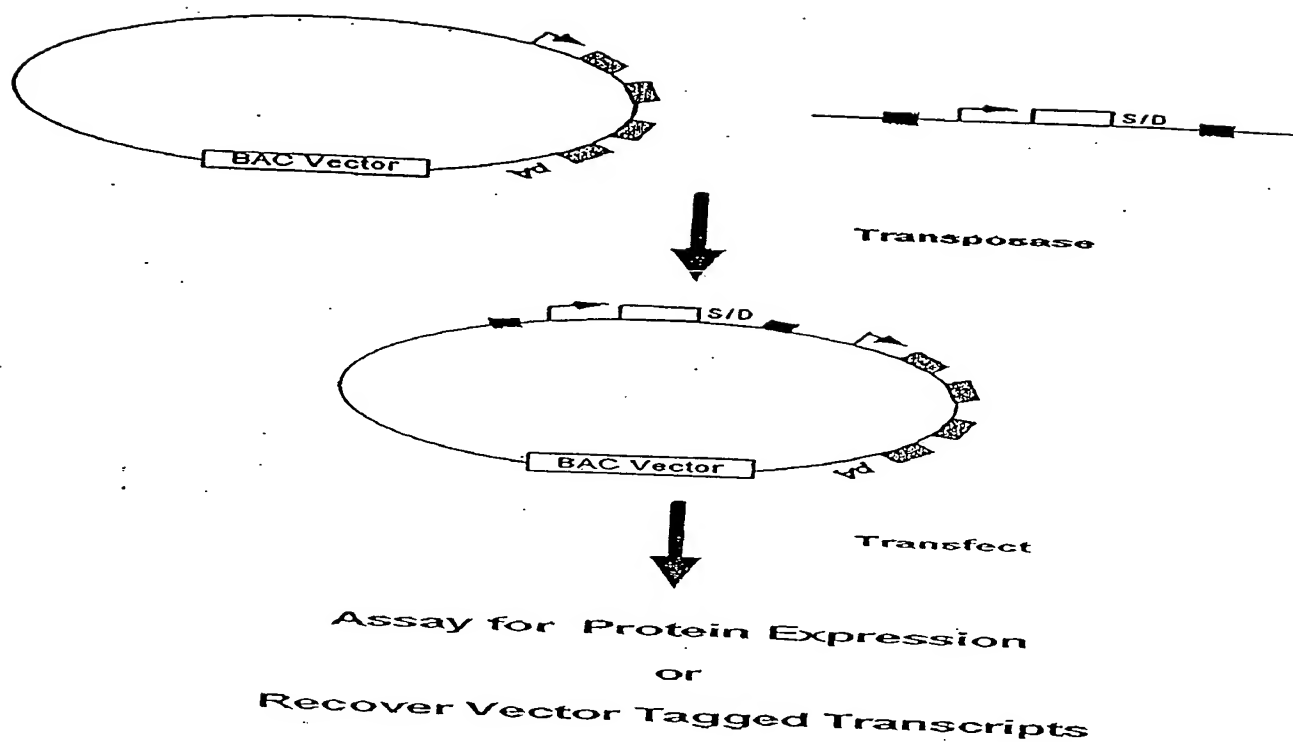AAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAA
AAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTG
GTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAG
AAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACT
CACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGA
TCCTTTTAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGT
AAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAG
CGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGAT
AACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACC
GCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACCAGCCAGC
CGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCA
GTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAG
TTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTCGTC
GTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTAC
ATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGAT
CGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGC
ACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACT
GGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAG
TTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAAC
TTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAG
GATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAA
CTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAAC
AGGAAGGCAAAATGCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGT
TGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTT
ATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAA
TAGGGGTTCCGCGCACATTTCCCCGAAAAGTGC

FIGURE 29B

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAA
TCAATATTGGCTATTGGCCATTGCATACGTTGTATCTATATCATAATATGTA
CATTTATATTGGCTCATGTCCAATATGACCGCCATGTTGGCATTGATTATTG
ACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATAT
ATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCG
CCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTA
ACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAA
ACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTCCGCCCCCT
ATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATG
ACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCT
ATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCG
GTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG
TTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTG
CGATCGCCCGCCCCGTTGACGCAAATGGGCGGTAGGCGTGTACGGTGGGA
GGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTGAATTCTG
ACGACCTACTGATTAACGGCCATAGAGGCCTCCTGCAGAACTGTCTTAGTG
ACAACTATCGATTTCCACACATTATACGAGCCGATGTTAATTGTCAACAGC
TCATGCATGACGTCCCGGGAGCAGACAAGCCCGACCATGGCTCGAGTAAT
ACGACTCACTATAGGGCGACAGGTGAGTACTCGCTACCTTAAGgcctatctggccg
tttaaacagatgtgtataagagacagctctcttaaGGTAGCCTGTCTCTTATACACATCTagatccttg
ctagagtcgaccaattctcatgtttgacagcttatcatcgcagatcctgagcttgtatggtgcactctcagtacaatctgctct
gctgccgcatagttaagccagtatctgctccctgcttgtgtgttggaggtcgctgagtagtgcgcgagcaaaatttaagcta
caacaaggcaaggcttgaccgacaattgcatgaagaatctgcttagggttaggcgttttgcgctgcttcgcgatgtacggg
ccagatatacgcgtatctgaggggactagggtgtgtttaggcgcccagcggggcttcggttgtacgcggttaggagtccc
ctcaggatatagtagtttcgcttttgcatagggagggggaaatgtagtcttatgcaatacacttgtagtcttgcaacatggtaa
cgatgagttagcaacatgccttacaaggagagaaaaagcaccgtgcatgccgattggtggaagtaaggtggtacgatcgt
gccttattaggaaggcaacagacaggtctgacatggattggacgaaccactgaattccgcattgcagagataattgtattta
agtgcctagctcgatacaataaacgccatttgaccattcaccacattggtgtgcacctccaagctgggtaccagctgctagc
ctcgagacgcgtgatttccttcgaagcttgtcatggttggttcgctaaactgcatcgtcgctgtgtcccagaacatgggcatc
ggcaagaacggggacctgccctggccaccgctcaggaatgaattcagatatttccagagaatgaccacaacctcttcagt
agaaggtaaacagaatctggtgattatgggtaagaagacctggttctccattcctgagaagaatcgacctttaaagggtaga
attaatttagttctcagcagagaactcaaggaacctccacaaggagctcattttctttccagaagtctagatgatgccttaaaa
cttactgaacaaccagaattagcaaataaagtagacatggtctggatagttggtggcagttctgtttataaggaagccatga
atcacccaggccatcttaaactatttgtgacaaggatcatgcaagactttgaaagtgacacgttttttccagaaattgatttgg
agaaatataaacttctgccagaatacccaggtgttctctctgatgtccaggaggagaaaggcattaagtacaaatttgaagt
atatgagaagaatgTTAATTAAgggcaccaataactgccttaaaaaaattacgccccgccctgccactcatcgcagt
actgttgtaattcattaagcattctgccgacatggaagccatcacagacggcatgatgaacctgaatcgccagcggcatca
gcaccttgtcgccttgcgtataatatttgcccatggtgaaaacggggggcgaagaagttgtccatattggccacgtttaaatca
aaactggtgaaactcacccagggattggctgagacgaaaaacatattctcaataaaccctttagggaaataggccaggtttt
caccgtaacacgccacatcttgcgaatatatgtgtagaaactgccggaaatcgtcgtggtattcactccagagcgatgaaa
acgtttcagtttgctcatggaaaacggtgtaacaagggtgaacactatcccatatcaccagctcaccgtctttcattgccata
cggaattccggatgagcattcatcaggcgggcaagaatgtgaataaaggccggataaaacttgtgcttatttttctttacggt
ctttaaaaaggccgtaatatccagctgaacggtctggttataggtacattgagcaactgactgaaatgcctcaaaatgttcttt
acgatgccattgggatatatcaacggtggtatatccagtgatttttttctccattttagcttccttagctcctgaaaatctcgata
actcaaaaaatacgcccggtagtgatcttatttcattatggtgaaagttggaacctcttacgtgccgatcaacgtctcattttcg
ccaaaTTAATTAAGGCGCGCCgctctcctggctaggagtcacgtagaaaggactaccgacgaaggaactt
gggtcgccggtgtgttcgtatatggaggtagtaagacctccctttacaacctaaggcgaggaactgcccttgctattccaca
atgtcgtcttacaccattgagtcgtctcccctttggaatggccctggacccggcccacaacctggcccgctaagggagtc
cattgtctgttatttcatggtctttttacaaactcatatatttgctgaggttttgaaggatgcgattaaggaccttgttatgacaa-

agcccgctcctacctgcaatatcagggtgactgtgtgcagctttgacgatggagtagatttgcctccctggtttccacctatg
gtggaaggggctgccgcggagggtgatgacggagatgacggagatgaaggaggtgatggagatgagggtgaggaag
ggcaggagtgatgtaacttgttaggagacgccctcaatcgtattaaaagccgtgtattcccccgcactaaagaataaatccc
cagtagacatcatgcgtgctgttggtgtatttctggccatctgtcttgtcaccattttcgtcctcccaacatggggcaattggg
catacccatgttgtcacgtcactcagctccgcgctcaacaccttctcgcgttggaaaacattagcgacatttacctggtgagc
aatcagacatgcgacggctttagcctggcctccttaaattcacctaagaatggggagcaaccagcatgcaggaaaaggaca
agcagcgaaaattcacgccccccttgggaggtggcggcatatgcaaaggatagcactcccactctactactgggtatcatat
gctgactgtatatgcatgaggatagcatatgctacccggatacagattaggatagcatatactacccagatatagattaggat
agcatatgctacccagatatagattaggatagcctatgctacccagatataaattaggatagcatatactacccagatataga
ttaggatagcatatgctacccagatatagattaggatagcctatgctacccagatatagattaggatagcatatgctacccag
atatagattaggatagcatatgctatccagatatttgggtagtatatgctacccagatataaattaggatagcatatactacccт
aatctctattaggatagcatatgctacccggatacagattaggatagcatatactacccagatatagattaggatagcatatg
ctacccagatatagattaggatagcctatgctacccagatataaattaggatagcatatactacccagatatagattaggata
gcatatgctacccagatatagattaggatagcctatgctacccagatatagattaggatagcatatgctatccagatatttgg
gtagtatatgctacccatggcaacattagcccaccgtgctctcagcgacctcgtgaatatgaggaccaacaaccctgtgctt
ggcgctcaggcgcaagtgtgtgtaatttgtcctccagatcgcagcaatcgcgcccctatcttggcccgcccacctacttatg
caggtattccccgggggtgccattagtggttttgtgggcaagtggtttgaccgcagtggttagcggggttacaatcagccaa
gttattacacccttattttacagtccaaaaccgcagggcggcgtgtggggggctgacgcgtgcccccactccacaatttcaaa
aaaaagagtggccacttgtctttgtttatgggccccattggcgtggagccccgtttaattttcggggggtgttagagacaacca
gtggagtccgctgctgtcggcgtccactctctttccccttgttacaaatagagtgtaacaacatggttcacctgtcttggtccc
tgcctgggacacatcttaataaccccagtatcatattgcactaggattatgtgttgcccatagccataaattcgtgtgagatgg
acatccagtctttacggcttgtccccacccatggatttctattgttaaagatattcagaatgtttcattcctacactagtatttatt
gcccaaggggtttgtgagggttatattggtgtcatagcacaatgccaccactgaaccccccgtccaaatttattctgggggg
cgtcacctgaaaccttgttttcgagcacctcacatacaccttactgttcacaactcagcagttattctattagctaaacgaagg
agaatgaagaagcaggcgaagattcaggagagttcactgcccgctccttgatcttcagccactgcccttgtgactaaaatg
gttcactaccctcgtggaatcctgaccccatgtaaataaaaccgtgacagctcatggggtgggagatatcgctgttccttag
gaccctttttactaaccctaattcgatagcatatgcttcccgttgggtaacatatgctattgaattagggttagtctggatagtat
atactactacccgggaagcatatgctacccgtttagggttaacaaggggggccttataaacactattgctaatgccctcttgag
ggtccgcttatcggtagctacacaggcccctctgattgacgttggtgtagcctcccgtagtcttcctgggcccctgggaggt
acatgtcccccagcattggtgtaagagcttcagccaagagttacacataaaggcaatgttgtgttgcagtccacagactgca
aagtctgctccaggatgaaagccactcagtgttggcaaatgtgcacatccatttataaggatgtcaactacagtcagagaac
ccctttgtgtttggtcccccccccgtgtcacatgtggaacagggcccagttggcaagttgtaccaaccaactgaagggattac
atgcactgccccgaatacaaaacaaaagcgctcctcgtaccagcgaagaaggggcagagatgccgtagtcaggtttagtt
cgtccggcggcggGCGGCCGCAAGGCGCGCCGGATCCACAGGACGGGTGTGGTC
GCCATGATCGCGTAGTCGATAGTGGCTCCAAGTAGCGAAGCGAGCAGGAC
TGGGCGGCGGCCAAAGCGGTCGGACAGTGCTCCGAGAACGGGTGCGCATA
GAAATTGCATCAACGCATATAGCGCTAGATCCTTGCTAGAGTCGAGATCTG
TCGAGCCATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGG
CCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACA
AAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGA
TACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACC
CTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCG
CTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCT
CCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCT
TATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGC
CACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGC
GGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAG
GACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAG
AGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTT-

FIGURE 30B

TTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAA
GATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCA
CGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATC
CTTTTATCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGCAT
CAGGAAATTGTAAGCGTTAATAATTCAGAAGAACTCGTCAAGAAGGCGAT
AGAAGGCGATGCGCTGCGAATCGGGAGCGGCGATACCGTAAAGCACGAGG
AAGCGGTCAGCCCATTCGCCGCCAAGCTCTTCAGCAATATCACGGGTAGCC
AACGCTATGTCCTGATAGCGGTCCGCCACACCCAGCCGGCCACAGTCGATG
AATCCAGAAAAGCGGCCATTTTCCACCATGATATTCGGCAAGCAGGCATCG
CCATGGGTCACGACGAGATCCTCGCCGTCGGGCATGCTCGCCTTGAGCCTG
GCGAACAGTTCGGCTGGCGCGAGCCCCTGATGCTCTTCGTCCAGATCATCC
TGATCGACAAGACCGGCTTCCATCCGAGTACGTGCTCGCTCGATGCGATGT
TTCGCTTGGTGGTCGAATGGGCAGGTAGCCGGATCAAGCGTATGCAGCCG
CCGCATTGCATCAGCCATGATGGATACTTTCTCGGCAGGAGCAAGGTGAG
ATGACAGGAGATCCTGCCCCGGCACTTCGCCCAATAGCAGCCAGTCCCTTC
CCGCTTCAGTGACAACGTCGAGCACAGCTGCGCAAGGAACGCCCGTCGTG
GCCAGCCACGATAGCCGCGCTGCCTCGTCTTGCAGTTCATTCAGGGCACCG
GACAGGTCGGTCTTGACAAAAAGAACCGGGCGCCCCTGCGCTGACAGCCG
GAACACGGCGGCATCAGAGCAGCCGATTGTCTGTTGTGCCCAGTCATAGCC
GAATAGCCTCTCCACCCAAGCGGCCGGAGAACCTGCGTGCAATCCATCTTG
TTCAATCATGCGAAACGATCCTCATCCTGTCTCTTGATCAGAGCTTGATCC
CCTGCGCCATCAGATCCTTGGCGGCGAGAAAGCCATCCAGTTTACTTTGCA
GGGCTTGTCAACCTTACCAGATAAAAGTGCTCATCATTGGAAAAcattcaattcgt
cgacctcgaaattctaccgggtaggggaggcgctttttcccaaggcagtctggagcatgcgctttagcagcccgctgggc
acttggcgctacacaagtggcctctggcctcgcacacattccacatccaccggtaggcgccaaccggctccgttctttggt
ggccccttcgcgccaccttctactcctcccctagtcaggaagttccccccgccccgcanctcgcgtcgtgcaggacgtg
acaaatggaaatagcacgtctcactagtctcgtgcagatggacaagcaccgctgagcaatggagcgggtaggcctttggg
gcagcggccaatagcagctttgctccttcgctttctgggctcagaggctggnaagggggtgggtccggggcgggctcag
gggcgggctcaggggcggggcgggcgcccgaaggtcctccggaggcccggcattctgcacgcttcaaaagcgcacgt
ctgccgcgctgttctcctcttcctcatctccgggcctttcgacctgcatccatctagatctcgagcagctgaagcttaccatga
ccgagtacaagcccacggtgcgcctcgccacccgcgacgacgtcccccgggccgtacgcaccctcgccgccgcgttcg
ccgactaccccgccacgcgccacaccgtcgacccggaccgccacatcgagcgggtcaccgagctgcaagaactcttcct
cacgcgcgtcgggctcgacatcggcaaggtgtgggtcgcggacgacggcgccgcggtggcggtctggaccacgccg
gagagcgtcgaagcggggggcggtgttcgccgagatcggcccgcgcatggccgagttgagcggttcccggctggccgc
gcagcaacagatggaaggcctcctggcgccgcaccgggcccaaggagcccgcgtggttccttggcccaccgtcgggc
gtcttcgcccgaccaccagggcaagggtctggcaagcgccgtcgtgctccccggagtggaggcggccgagcgcgccg
gggtgcccgccttcctggagacctccgcgccccgcaacctcccttctacgagcggctcggcttcaccgtcaccgccgac
gtcgaggtgcccgaaggaccgcgcacctggtgcatgacccgcaagcccggtgcctgacgcccgccccacgacccgca
gcgcccgaccgaaaggagcgcacgacccatgcatcgatggcactgggcaggtaagtatcaaggttagcGGCCGC
TAACCTGGTTGCTGACTAATTGAGATGCATGCTTTGCATACTTCTGCCTGCT
GGGGAGCCTGGGGACTTTCCACACCCTAACTGACACACATTCCACAGCTGG
TTCTTTCCGCCTCAGAAGGTACACAGGCGAAATTGTAAGCGTTAATATTTT
GTTAAAATTCGCGTTAAATTTTTGTTAAATCAGCTCATTTTTTAACCAATAG
GCCGAAATCGGCAAAATCCCTTATAAATCAAAAGAATAGACCGAGATAGG
GTTGAGTGTTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGA
CTCCAACGTCAAAGGGCGAAAAACCGTCTATCAGGGCGATGGCCCAC

FIGURE 30C

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATATAGCATAAA
TCAATATTGGCTATTGGCCATTGCATACGTTGTATCTATATCATAATATGTA
CATTTATATTGGCTCATGTCCAATATGACCGCCATGTTGGCATTGATTATTG
ACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATAT
ATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCG
CCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTA
ACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAA
ACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTCCGCCCCCT
ATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATG
ACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCT
ATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCG
GTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG
TTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTG
CGATCGCCCGCCCCGTTGACGCAAATGGGCGGTAGGCGTGTACGGTGGGA
GGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTGAATTCTG
ACGACCTACTGATTAACGGCCATAGAGGCCTCCTGCAGAACTGTCTTAGTG
ACAACTATCGATTTCCACACATTATACGAGCCGATGTTAATTGTCAACAGC
TCATGCATGACGTCCCGGGAGCAGACAAGCCCGACCATGGCTCGAGTAAT
ACGACTCACTATAGGGCGACAGGTGAGTACTCGCTACCTTAAggcctatctggccg
tttaaacagatgtgtataagagacagctctcttaaGGTAGCCTGTCTCTTATACACATCTagatccttg
ctagagtcgaccaattctcatgtttgacagcttatcatcgcagatcctgagcttgtatggtgcactctcagtacaatctgctct
gctgccgcatagttaagccagtatctgctccctgcttgtgtgttggaggtcgctgagtagtgcgcgagcaaaatttaagcta
caacaaggcaaggcttgaccgacaattgcatgaagaatctgcttagggttaggcgttttgcgctgcttcgcgatgtacggg
ccagatatacgcgtatctgaggggactagggtgtgtttaggcgcccagcggggcttcggttgtacgcggttaggagtccc
ctcaggatatagtagtttcgcttttgcatagggagggggaaatgtagtcttatgcaatacacttgtagtcttgcaacatggtaa
cgatgagttagcaacatgccttacaaggagagaaaaagcaccgtgcatgccgattggtggaagtaaggtggtacgatcgt
gccttattaggaaggcaacagacaggtctgacatggattggacgaaccactgaattccgcattgcagagataattgtattta
agtgcctagctcgatacaataaacgccatttgaccattcaccacattggtgtgcacctccaagctgggtaccagctgctagc
ctcgagacgcgtgatttccttcgaagcttgtcatggttggttcgctaaactgcatcgtcgctgtgtcccagaacatgggcatc
ggcaagaacggggacctgccctggccaccgctcaggaatgaattcagatatttccagagaatgaccacaacctcttcagt
agaaggtaaacagaatctggtgattatgggtaagaagacctggttctccattcctgagaagaatcgacctttaaagggtaga
attaatttagttctcagcagagaactcaaggaacctccacaaggagctcattttctttccagaagtctagatgatgccttaaaa
cttactgaacaaccagaattagcaaataaagtagacatggtctggatagttggtggcagttctgtttataaggaagccatga
atcacccaggccatcttaaaactatttgtgacaaggatcatgcaagactttgaaagtgacacgttttttccagaaattgatttgg
agaaatataaacttctgccagaatacccaggtgttctctctgatgtccaggaggagaaaggcattaagtacaaatttgaagt
atatgagaagaatgTTAATTAAgggcaccaataactgccttaaaaaaattacgccccgccctgccactcatcgcagt
actgttgtaattcattaagcattctgccgacatggaagccatcacagacggcatgatgaacctgaatcgccagcggcatca
gcaccttgtcgccttgcgtataatatttgcccatggtgaaaacggggggcgaagaagttgtccatattggccacgtttaaatca
aaactggtgaaactcacccagggattggctgagacgaaaaacatattctcaataaacctttagggaaataggccaggtttt
caccgtaacacgccacatcttgcgaatatatgtgtagaaactgccggaaatcgtcgtggtattcactccagagcgatgaaa
acgtttcagtttgctcatggaaaacggtgtaacaagggtgaacactatcccatatcaccagctcaccgtctttcattgccata
cggaattccggatgagcattcatcaggcgggcaagaatgtgaataaaggccggataaaacttgtgcttatttttctttacggt
ctttaaaaaggccgtaatatccagctgaacggtctggttataggtacattgagcaactgactgaaatgcctcaaaatgttcttt
acgatgccattgggatatatcaacggtggtatatccagtgatttttttctccattttagcttccttagctcctgaaaatctcgata
actcaaaaaatacgcccggtagtgatcttatttcattatggtgaaagttggaacctcttacgtgccgatcaacgtctcattttcg
ccaaaTTAATTAAGGCGCGCCgctctcctggctaggagtcacgtagaaaggactaccgacgaaggaactt
gggtcgccggtgtgttcgtatatggaggtagtaagacctccctttacaacctaaggcgaggaactgcccttgctattccaca
atgtcgtcttacaccattgagtcgtctcccctttggaatggcccctggacccggcccacaacctggcccgctaagggagtc
cattgtctgttatttcatggtcttttacaaactcatatatttgctgaggttttgaaggatgcgattaaggaccttgttatgacaa-

agcccgctcctacctgcaatatcagggtgactgtgtgcagctttgacgatggagtagatttgcctccctggtttccacctatg
gtggaaggggctgccgcggagggtgatgacggagatgacggagatgaaggaggtgatggagatgagggtgaggaag
ggcaggagtgatgtaacttgttaggagacgccctcaatcgtattaaaagccgtgtattcccccgcactaaagaataaatccc
cagtagacatcatgcgtgctgttggtgtatttctggccatctgtcttgtcaccattttcgtcctcccaacatgggggcaattggg
catacccatgttgtcacgtcactcagctccgcgctcaacaccttctcgcgttggaaaacattagcgacatttacctggtgagc
aatcagacatgcgacggctttagcctggcctccttaaattcacctaagaatgggggagcaaccagcatgcaggaaaaggaca
agcagcgaaaattcacgccccccttgggaggtggcggcatatgcaaaggatagcactcccactctactactgggtatcatat
gctgactgtatatgcatgaggatagcatatgctacccggatacagattaggatagcatatactacccagatatagattaggat
agcatatgctacccagatatagattaggatagcctatgctacccagatataaattaggatagcatatactacccagatataga
ttaggatagcatatgctacccagatatagattaggatagcctatgctacccagatatagattaggatagcatatgctacccag
atatagattaggatagcatatgctatccagatatttgggtagtatatgctacccagatataaattaggatagcatatactacccct
aatctctattaggatagcatatgctacccggatacagattaggatagcatatactacccagatatagattaggatagcatatg
ctacccagatatagattaggatagcctatgctacccagatataaattaggatagcatatactacccagatatagattaggata
gcatatgctacccagatatagattaggatagcctatgctacccagatatagattaggatagcatatgctatccagatatttgg
gtagtatatgctacccatggcaacattagcccaccgtgctctcagcgacctcgtgaatatgaggaccaacaaccctgtgctt
ggcgctcaggcgcaagtgtgtgtaatttgtcctccagatcgcagcaatcgcgcccctatcttggcccgcccacctacttatg
caggtattccccggggtgccattagtggtttgtgggcaagtggtttgaccgcagtggttagcggggttacaatcagccaa
gttattacacccttatttacagtccaaaaccgcagggcggcgtgtgggggctgacgcgtgcccccactccacaatttcaaa
aaaaagagtggccacttgtctttgtttatgggcccccattggcgtggagccccgtttaattttcggggggtgttagagacaacca
gtggagtccgctgctgtcggcgtccactctctttcccccttgttacaaatagagtgtaacaacatggttcacctgtcttggtccc
tgcctgggacacatcttaataaccccagtatcatattgcactaggattatgtgttgcccatagccataaaattcgtgtgagatgg
acatccagtctttacggcttgtccccaccccatggatttctattgttaaagatattcagaatgtttcattcctacactagtatttatt
gcccaagggggtttgtgagggttatattggtgtcatagcacaatgccaccactgaaccccccgtccaaatttttattctggggg
cgtcacctgaaaccttgttttcgagcacctcacatacaccttactgttcacaactcagcagttattctattagctaaacgaagg
agaatgaagaagcaggcgaagattcaggagagttcactgcccgctccttgatcttcagccactgcccttgtgactaaaatg
gttcactaccctcgtggaatcctgacccccatgtaaataaaaccgtgacagctcatgggggtgggagatatcgctgttccttag
gacccttttactaaccctaattcgatagcatatgcttcccgttgggtaacatatgctattgaattagggttagtctggatagtat
atactactacccggggaagcatatgctacccgtttagggttaacaaggggggccttataaacactattgctaatgccctcttgag
ggtccgcttatcggtagctacacaggcccctctgattgacgttggtgtagcctcccgtagtcttcctgggcccctgggaggt
acatgtcccccagcattggtgtaagagcttcagccaagagttacacataaaggcaatgttgtgttgcagtccacagactgca
aagtctgctccaggatgaaagccactcagtgttggcaaatgtgcacatccatttataaggatgtcaactacagtcagagaac
ccctttgtgtttggtccccccccgtgtcacatgtggaacagggcccagttggcaagttgtaccaaccaactgaagggattac
atgcactgccccgaatacaaaacaaaagcgctcctcgtaccagcgaagaaggggcagagatgccgtagtcaggtttagtt
cgtccggcggcggGCGGCCGCAAGGCGCGCCGGATCCACAGGACGGGTGTGGTC
GCCATGATCGCGTAGTCGATAGTGGCTCCAAGTAGCGAAGCGAGCAGGAC
TGGGCGGCGGCCAAAGCGGTCGGACAGTGCTCCGAGAACGGGTGCGCATA
GAAATTGCATCAACGCATATAGCGCTAGATCCTTGCTAGAGTCGAGATCTG
TCGAGCCATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGG
CCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACA
AAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGA
TACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACC
CTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCG
CTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCT
CCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCT
TATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGC
CACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGC
GGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAG
GACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAG
AGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTT-

FIGURE 31B

TTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAA
GATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCA
CGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATC
CTTTTATCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGCAT
CAGGAAATTGTAAGCGTTAATAATTCAGAAGAACTCGTCAAGAAGGCGAT
AGAAGGCGATGCGCTGCGAATCGGGAGCGGCGATACCGTAAAGCACGAGG
AAGCGGTCAGCCCATTCGCCGCCAAGCTCTTCAGCAATATCACGGGTAGCC
AACGCTATGTCCTGATAGCGGTCCGCCACACCCAGCCGGCCACAGTCGATG
AATCCAGAAAAGCGGCCATTTTCCACCATGATATTCGGCAAGCAGGCATCG
CCATGGGTCACGACGAGATCCTCGCCGTCGGGCATGCTCGCCTTGAGCCTG
GCGAACAGTTCGGCTGGCGCGAGCCCCTGATGCTCTTCGTCCAGATCATCC
TGATCGACAAGACCGGCTTCCATCCGAGTACGTGCTCGCTCGATGCGATGT
TTCGCTTGGTGGTCGAATGGGCAGGTAGCCGGATCAAGCGTATGCAGCCG
CCGCATTGCATCAGCCATGATGGATACTTTCTCGGCAGGAGCAAGGTGAG
ATGACAGGAGATCCTGCCCCGGCACTTCGCCCAATAGCAGCCAGTCCCTTC
CCGCTTCAGTGACAACGTCGAGCACAGCTGCGCAAGGAACGCCCGTCGTG
GCCAGCCACGATAGCCGCGCTGCCTCGTCTTGCAGTTCATTCAGGGCACCG
GACAGGTCGGTCTTGACAAAAAGAACCGGGCGCCCCTGCGCTGACAGCCG
GAACACGGCGGCATCAGAGCAGCCGATTGTCTGTTGTGCCCAGTCATAGCC
GAATAGCCTCTCCACCCAAGCGGCCGGAGAACCTGCGTGCAATCCATCTTG
TTCAATCATGCGAAACGATCCTCATCCTGTCTCTTGATCAGAGCTTGATCC
CCTGCGCCATCAGATCCTTGGCGGCGAGAAAGCCATCCAGTTTACTTTGCA
·GGGCTTGTCAACCTTACCAGATAAAAGTGCTCATCATTGGAAAAcattcaattcgt
cgacctcgaaattctaccgggtaggggaggcgctttcccaaggcagtctggagcatgcgctttagcagccccgctgggc
acttggcgctacacaagtggcctctggcctcgcacacattccacatccaccggtaggcgccaaccggctccgttctttggt
ggccccttcgcgccaccttctactcctcccctagtcaggaagttcccccccgccccgcanctcgcgtcgtgcaggacgtg
acaaatggaaatagcacgtctcactagtctcgtgcagatggacaagcaccgctgagcaatggagcgggtaggcctttggg
gcagcggccaatagcagctttgctccttcgctttctgggctcagaggctggnaagggggtgggtccggggcgggctcag
gggcgggctcaggggcggggcgggcgcccgaaggtcctccggaggcccggcattctgcacgcttcaaaagcgcacgt
ctgccgcgctgttctcctcttcctcatctccgggcctttcgacctgcatccatctagatctcgagcagctgaagcttaccatga
ccgagtacaagcccacggtgcgcctcgccacccgcgacgacgtcccccgggccgtacgcaccctcgccgccgcgttcg
ccgactaccccgccacgcgccacaccgtcgacccggaccgccacatcgagcgggtcaccgagctgcaagaactcttcct
cacgcgcgtcgggctcgacatcggcaaggtgtgggtcgcggacgacggcgccgcggtggcggtctggaccacgccg
gagagcgtcgaagcgggggcggtgttcgccgagatcggcccgcgcatggccgagttgagcggttcccggctggccgc
gcagcaacagatggaaggcctcctggcgccgcacaccgggcccaaggagcccgcgtggttccttggcccaccgtcgggc
gtcttcgcccgaccaccagggcaaggagtctggcaagcgccgtcgtgctccccggagtggaggcggccgagcgcgccg
gggtgcccgccttcctggagacctccgcgccccgcaacctccccttctacgagcggctcggcttcaccgtcaccgccgac
gtcgaggtgcccgaaggaccgcgcacctggtgcatgacccgcaagcccggtgcctgacgcccgccccacgacccgca
gcgcccgaccgaaaggagcgcacgaccccatgcatcgatggcactgggcaggtaagtatcaaggttagcGGCCGC
TAACCTGGTTGCTGACTAATTGAGATGCATGCTTTGCATACTTCTGCCTGCT
GGGGAGCCTGGGGACTTTCCACACCCTAACTGACACACATTCCACAGCTGG
TTCTTTCCGCCTCAGAAGGTACACAGGCGAAATTGTAAGCGTTAATATTTT
GTTAAAATTCGCGTTAAATTTTTGTTAAATCAGCTCATTTTTTAACCAATAG
GCCGAAATCGGCAAAATCCCTTATAAATCAAAAGAATAGACCGAGATAGG
GTTGAGTGTTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGA
CTCCAACGTCAAAGGGCGAAAAACCGTCTATCAGGGCGATGGCCCAC

FIGURE 31C

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAA
TCAATATTGGCTATTGGCCATTGCATACGTTGTATCTATATCATAATATGTA
CATTTATATTGGCTCATGTCCAATATGACCGCCATGTTGGCATTGATTATTG
ACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATAT
ATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCG
CCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTA
ACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAA
ACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTCCGCCCCCT
ATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATG
ACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCT
ATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCG
GTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG
TTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTG
CGATCGCCCGCCCCGTTGACGCAAATGGGCGGTAGGCGTGTACGGTGGGA
GGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTGAATTCTG
ACGACCTACTGATTAACGGCCAGATCTAAGCTAGCGCCGCCACCATGGCC
CTAAAAGAAGCGTAAAGTCGCCCCCCCGACCGATGTCAGCCTGGGGGAC
GAGCTCCACTTAGACGGCGAGGACGTGGCGATGGCGCATGCCGACGCGCT
AGACGATTTCGATCTGGACATGTTGGGGGACGGGGATTCCCCGGGGCCGG
GATTTACCCCCCACGACTCCGCCCCCTACGGCGCTCTGGATATGGCCGACT
TCGAGTTTGAGCAGATGTTTACCGATGCCCTTGGAATTGACGAGTACGGTG
GGGAATTCAGGTGAGTACTCGCTACCTTAAggcctatctggccgtttaaacagatgtgtataag
agacagctctcttaaGGTAGCCTGTCTCTTATACACATCTagatccttgctagagtcgaccaattctc
atgtttgacagcttatcatcgcagatcctgagcttgtatggtgcactctcagtacaatctgctctgctgccgcatagttaagcc
agtatctgctccctgcttgtgtgttggaggtcgctgagtagtgcgcgagcaaaatttaagctacaacaaggcaaggcttgac
cgacaattgcatgaagaatctgcttagggttaggcgttttgcgctgcttcgcgatgtacgggccagatatacgcgtatctga
gggggactagggtgtgtttaggcgcccagcggggcttcggttgtacgcggttaggagtcccctcaggatatagtagtttcgc
ttttgcatagggagggggaaatgtagtcttatgcaatacacttgtagtcttgcaacatggtaacgatgagttagcaacatgcc
ttacaaggagagaaaaagcaccgtgcatgccgattggtggaagtaaggtggtacgatcgtgccttattaggaaggcaaca
gacaggtctgacatggattggacgaaccactgaattccgcattgcagagataattgtatttaagtgcctagctcgatacaata
aacgccatttgaccattcaccacattggtgtgcacctccaagctgggtaccagctgctagcctcgagacgcgtgatttcctt
cgaagcttgtcatggttggttcgctaaactgcatcgtcgctgtgtcccagaacatgggcatcggcaagaacggggacctgc
cctggccaccgctcaggaatgaattcagatatttccagagaatgaccacaacctcttcagtagaaggtaaacagaatctggt
gattatgggtaagaagacctggttctccattcctgagaagaatcgacctttaaagggtagaattaatttagttctcagcagag
aactcaaggaacctccacaaggagctcattttctttccagaagtctagatgatgccttaaaacttactgaacaaccagaatta
gcaaataaagtagacatggtctggatagttggtggcagttctgtttataaggaagccatgaatcacccaggccatcttaaac
tatttgtgacaaggatcatgcaagactttgaaagtgacacgttttttccagaaattgatttggagaaatataaacttctgccag
aatacccaggtgttctctctgatgtccaggaggagaaaggcattaagtacaaatttgaagtatatgagaagaatgTTAA
TTAAgggcaccaataactgccttaaaaaaattacgccccgccctgccactcatcgcagtactgttgtaattcattaagcat
tctgccgacatggaagccatcacagacggcatgatgaacctgaatcgccagcggcatcagcaccttgtcgccttgcgtata
atatttgcccatggtgaaaacggggggcgaagaagttgtccatattggccacgtttaaatcaaaactggtgaaactcacccag
ggattggctgagacgaaaaacatattctcaataaacccttagggaaataggccaggttttcaccgtaacacgccacatctt
gcgaatatatgtgtagaaactgccggaaatcgtcgtggtattcactccagagcgatgaaaacgtttcagtttgctcatggaa
aacggtgtaacaagggtgaacactatcccatatcaccagctcaccgtctttcattgccatacggaattccggatgagcattc
atcaggcgggcaagaatgtgaataaaggccggataaaacttgtgcttatttttctttacggtctttaaaaaggccgtaatatcc
agctgaacggtctggttataggtacattgagcaactgactgaaatgcctcaaaatgttcttacgatgccattgggatatatca
acggtggtatatccagtgatttttttctccatttagcttccttagctcctgaaaatctcgataactcaaaaaatacgcccggtag
tgatcttatttcattatggtgaaagttggaacctcttacgtgccgatcaacgtctcattttcgccaaaTTAATTAAGG
CGCGCCgctctcctggctaggagtcacgtagaaaggactaccgacgaaggaacttgggtcgccggtgtgttcgtat-

atggaggtagtaagacctccctttacaacctaaggcgaggaactgcccttgctattccacaatgtcgtcttacaccattgagt
cgtctcccctttggaatggcccctggacccggcccacaacctggcccgctaagggagtccattgtctgttatttcatggtctt
tttacaaactcatatatttgctgaggttttgaaggatgcgattaaggaccttgttatgacaaagcccgctcctacctgcaatatc
agggtgactgtgtgcagctttgacgatggagtagatttgcctccctggtttccacctatggtggaagggggctgccgcggag
ggtgatgacggagatgacggagatgaaggaggtgatggagatgagggtgaggaagggcaggagtgatgtaacttgtta
ggagacgccctcaatcgtattaaaagccgtgtattcccccgcactaaagaataaatccccagtagacatcatgcgtgctgtt
ggtgtatttctggccatctgtcttgtcaccattttcgtcctcccaacatgggggcaattgggcatacccatgttgtcacgtcactc
agctccgcgctcaacaccttctcgcgttggaaaacattagcgacatttacctggtgagcaatcagacatgcgacggctttag
cctggcctccttaaattcacctaagaatggggagcaaccagcatgcaggaaaaggacaagcagcgaaaattcacgcccccct
tgggaggtggcggcatatgcaaaggatagcactcccactctactactgggtatcatatgctgactgtatatgcatgaggata
gcatatgctacccggatacagattaggatagcatatactacccagatatagattaggatagcatatgctacccagatatagat
taggatagcctatgctacccagatataaattaggatagcatatactacccagatatagattaggatagcatatgctacccaga
tatagattaggatagcctatgctacccagatatagattaggatagcatatgctacccagatatagattaggatagcatatgcta
tccagatatttgggtagtatatgctacccagatataaattaggatagcatatactaccctaatctctattaggatagcatatgct
acccggatacagattaggatagcatatactacccagatatagattaggatagcatatgctacccagatatagattaggatag
cctatgctacccagatataaattaggatagcatatactacccagatatagattaggatagcatatgctacccagatatagatta
ggatagcctatgctacccagatatagattaggatagcatatgctatccagatatttgggtagtatatgctacccatggcaaca
ttagcccaccgtgctctcagcgacctcgtgaatatgaggaccaacaaccctgtgcttggcgctcaggcgcaagtgtgtgta
atttgtcctccagatcgcagcaatcgcgcccctatcttggcccgcccacctacttatgcaggtattccccggggtgccatta
gtggttttgtgggcaagtggtttgaccgcagtggttagcggggttacaatcagccaagttattacacccttattttacagtcca
aaaccgcagggcggcgtgtgggggctgacgcgtgcccccactccacaatttcaaaaaaaagagtggccacttgtctttgt
ttatgggcccccattggcgtggagccccgtttaattttcggggggtgttagagacaaccagtggagtccgctgctgtcggcgt
ccactctctttcccccttgttacaaatagagtgtaacaacatggttcacctgtcttggtccctgcctgggacacatcttaataacc
ccagtatcatattgcactaggattatgtgttgcccatagccataaattcgtgtgagatggacatccagtctttacggcttgtcc
ccaccccatggatttctattgttaaagatattcagaatgtttcattcctacactagtatttattgcccaaggggtttgtgagggtt
atattggtgtcatagcacaatgccaccactgaacccccccgtccaaattttattctgggggcgtcacctgaaaccttgttttcga
gcacctcacatacaccttactgttcacaactcagcagttattctattagctaaacgaaggagaatgaagaagcaggcgaag
attcaggagagttcactgcccgctccttgatcttcagccactgcccttgtgactaaaatggttcactaccctcgtggaatcctg
accccatgtaaataaaaccgtgacagctcatggggtggggagatatcgctgttccttaggacccttttactaaccctaattcga
tagcatatgcttcccgttgggtaacatatgctattgaattagggttagtctggatagtatatactactacccgggaagcatatg
ctacccgtttaggggttaacaagggggccttataaacactattgctaatgccctcttgagggtccgcttatcggtagctacaca
ggcccctctgattgacgttggtgtagcctcccgtagtcttcctgggcccctgggaggtacatgtcccccagcattggtgtaa
gagcttcagccaagagttacacataaaggcaatgttgtgttgcagtccacagactgcaaagtctgctccaggatgaaagcc
actcagtgttggcaaatgtgcacatccatttataaggatgtcaactacagtcagagaaccccctttgtgtttggtccccccccgt
gtcacatgtggaacagggcccagttggcaagttgtaccaaccaactgaagggattacatgcactgcccccgaatacaaaac
aaaagcgctcctcgtaccagcgaagaaggggcagagatgccgtagtcaggtttagttcgtccggcggcggGCGGC
CGCAAGGCGCGCCGGATCCACAGGACGGGTGTGGTCGCCATGATCGCGTA
GTCGATAGTGGCTCCAAGTAGCGAAGCGAGCAGGACTGGGCGGCGGCCAA
AGCGGTCGGACAGTGCTCCGAGAACGGGTGCGCATAGAAATTGCATCAAC
GCATATAGCGCTAGATCCTTGCTAGAGTCGAGATCTGTCGAGCCATGTGAG
CAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCG
TTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCA
AGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCC
CCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGG
ATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCA
CGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGT
GTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTAT
CGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCC
ACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGT-

FIGURE 32B

TCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTA
TCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTT
GATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTTTGCAAGC
AGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTT
CTACGGGGTCTGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTG
GTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTATCGGTGTGA
AATACCGCACAGATGCGTAAGGAGAAAATACCGCATCAGGAAATTGTAAG
CGTTAATAATTCAGAAGAACTCGTCAAGAAGGCGATAGAAGGCGATGCGC
TGCGAATCGGGAGCGGCGATACCGTAAAGCACGAGGAAGCGGTCAGCCCA
TTCGCCGCCAAGCTCTTCAGCAATATCACGGGTAGCCAACGCTATGTCCTG
ATAGCGGTCCGCCACACCCAGCCGGCCACAGTCGATGAATCCAGAAAAGC
GGCCATTTTCCACCATGATATTCGGCAAGCAGGCATCGCCATGGGTCACGA
CGAGATCCTCGCCGTCGGGCATGCTCGCCTTGAGCCTGGCGAACAGTTCGG
CTGGCGCGAGCCCCTGATGCTCTTCGTCCAGATCATCCTGATCGACAAGAC
CGGCTTCCATCCGAGTACGTGCTCGCTCGATGCGATGTTTCGCTTGGTGGT
CGAATGGGCAGGTAGCCGGATCAAGCGTATGCAGCCGCCGCATTGCATCA
GCCATGATGGATACTTTCTCGGCAGGAGCAAGGTGAGATGACAGGAGATC
CTGCCCCGGCACTTCGCCCAATAGCAGCCAGTCCCTTCCCGCTTCAGTGAC
AACGTCGAGCACAGCTGCGCAAGGAACGCCCGTCGTGGCCAGCCACGATA
GCCGCGCTGCCTCGTCTTGCAGTTCATTCAGGGCACCGGACAGGTCGGTCT
TGACAAAAAGAACCGGGCGCCCCTGCGCTGACAGCCGGAACACGGCGGCA
TCAGAGCAGCCGATTGTCTGTTGTGCCCAGTCATAGCCGAATAGCCTCTCC
ACCCAAGCGGCCGGAGAACCTGCGTGCAATCCATCTTGTTCAATCATGCGA
AACGATCCTCATCCTGTCTCTTGATCAGAGCTTGATCCCCTGCGCCATCAG
ATCCTTGGCGGCGAGAAAGCCATCCAGTTTACTTTGCAGGGCTTGTCAACC
TTACCAGATAAAAGTGCTCATCATTGGAAAcattcaattcgtcgacctcgaaattctaccggg
taggggaggcgcttttcccaaggcagtctggagcatgcgctttagcagccccgctgggcacttggcgctacacaagtggc
ctctggcctcgcacacattccacatccaccggtaggcgccaaccggctccgttctttggtggccccttcgcgccaccttcta
ctcctcccctagtcaggaagttccccccgcccccgcanctcgcgtcgtgcaggacgtgacaaatggaaatagcacgtctc
actagtctcgtgcagatggacaagcaccgctgagcaatggagcgggtaggcctttggggcagcggccaatagcagcttt
gctccttcgctttctgggctcagaggctggnaaggggtgggtccggggcggcctagggcggctcagggcggg
gcgggcgcccgaaggtcctccggaggcccggcattctgcacgcttcaaaagcgcacgtctgccgcgctgttctcctcttc
ctcatctccgggcctttcgacctgcatccatctagatctcgagcagctgaagcttaccatgaccgagtacaagcccacggt
gcgcctcgccaccccgcgacgacgtccccccgggccgtacgcaccctcgccgccgcgttcgccgactaccccgccacgcg
ccacaccgtcgacccggaccgccacatcgagcgggtcaccgagctgcaagaactcttcctcacgcgcgtcgggctcgac
atcggcaaggtgtgggtcgcggacgacggcgccgcggtggcggtctggaccacgccggagagcgtcgaagcggggg
cggtgttcgccgagatcggcccgcgcatggccgagttgagcggttcccggctggccgcgcagcaacagatggaaggcc
tcctggcgccgcaccgggcccaaggagcccgcgtggttccttggcccaccgtcgggcgtcttcgcccgaccaccaggg
caagggtctggcaagcgccgtcgtgctccccggagtggaggcggccgagcgcgccggggtgcccgccttcctggaga
cctccgcgccccgcaacctcccccttctacgagcggctcggcttcaccgtcaccgccgacgtcgaggtgcccgaaggacc
gcgcacctggtgcatgacccgcaagcccggtgcctgacgcccgccccacgacccgcagcgcccgaccgaaaggagcg
cacgaccccatgcatcgatggcactgggcaggtaagtatcaaggttagcGGCCGCTAACCTGGTTGCT
GACTAATTGAGATGCATGCTTTGCATACTTCTGCCTGCTGGGGAGCCTGGG
GACTTTCCACACCCTAACTGACACACATTCCACAGCTGGTTCTTTCCGCCTC
AGAAGGTACACAGGCGAAATTGTAAGCGTTAATATTTTGTTAAAATTCGCG
TTAAATTTTTGTTAAATCAGCTCATTTTTTAACCAATAGGCCGAAATCGGC
AAAATCCCTTATAAATCAAAAGAATAGACCGAGATAGGGTTGAGTGTTGTT
CCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAA
GGGCGAAAAACCGTCTATCAGGGCGATGGCCCAC

FIGURE 32C

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAA
TCAATATTGGCTATTGGCCATTGCATACGTTGTATCTATATCATAATATGTA
CATTTATATTGGCTCATGTCCAATATGACCGCCATGTTGGCATTGATTATTG
ACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATAT
ATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCG
CCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTA
ACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAA
ACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTCCGCCCCCT
ATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATG
ACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCT
ATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCG
GTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG
TTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTG
CGATCGCCCGCCCCGTTGACGCAAATGGGCGGTAGGCGTGTACGGTGGGA
GGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTGAATTCTG
ACGACCTACTGATTAACGGCCAGATCTAAGCTAGCTTCCTGAAAGATGAAG
CTACTGTCTTCTATCGAACAAGCATGCGATATTTGCCGACTTAAAAAGCTC
AAGTGCTCCAAAGAAAAACCGAAGTGCGCCAAGTGTCTGAAGAACAACTG
GGAGTGTCGCTACTCTCCCAAAACCAAAAGGTCTCCGCTGACTAGGGCACA
TCTGACAGAAGTGGAATCAAGGCTAGAAAGACTGGAACAGCTATTTCTACT
GATTTTTCCTCGAGAAGACCTTGACATGATTTTGAAAATGGATTCTTTACA
GGATATAAAAGCATTGTTAACAGGATTATTTGTACAAGATAATGTGAATAA
AGATGCCGTCACAGATAGATTGGCTTCAGTGGAGACTGATATGCCTCTAAC
ATTGAGACAGCATAGAATAAGTGCGACATCATCATCGGAAGAGAGTAGTA
ACAAAGGTCAAAGACAGTTGACTGTATCGCCGGAATTCAGGTGAGTACTC
GCTACCTTAAggcctatctggccgtttaaacagatgtgtataagagacagctctcttaaGGTAGCCTGTC
TCTTATACACATCTagatccttgctagagtcgaccaattctcatgtttgacagcttatcatcgcagatcctgagct
tgtatggtgcactctcagtacaatctgctctgctgccgcatagttaagccagtatctgctccctgcttgtgtgttggaggtcgc
tgagtagtgcgcgagcaaaatttaagctacaacaaggcaaggcttgaccgacaattgcatgaagaatctgcttagggttag
gcgttttgcgctgcttcgcgatgtacgggccagatatacgcgtatctgaggggactagggtgtgtttaggcgcccagcgg
ggcttcggttgtacgcggttaggagtccccctcaggatatagtagtttcgcttttgcatagggagggggaaatgtagtcttatg
caatacacttgtagtcttgcaacatggtaacgatgagttagcaacatgccttacaaggagagaaaaagcaccgtgcatgcc
gattggtggaagtaaggtggtacgatcgtgccttattaggaaggcaacagacaggtctgacatggattggacgaaccact
gaattccgcattgcagagataattgtatttaagtgcctagctcgatacaataaacgccatttgaccattcaccacattggtgtg
cacctccaagctgggtaccagctgctagcctcgagacgcgtgatttccttcgaagcttgtcatggttggttcgctaaactgc
atcgtcgctgtgtcccagaacatgggcatcggcaagaacggggacctgccctggccaccgctcaggaatgaattcagata
tttccagagaatgaccacaacctcttcagtagaaggtaaacagaatctggtgattatgggtaagaagacctggttctccattc
ctgagaagaatcgacctttaaagggtagaattaatttagttctcagcagagaactcaaggaacctccacaaggagctcatttt
ctttccagaagtctagatgatgcccttaaaacttactgaacaaccagaattagcaaataaagtagacatggtctggatagttgg
tggcagttctgtttataaggaagccatgaatcacccaggccatcttaaactatttgtgacaaggatcatgcaagactttgaaa
gtgacacgtttttttccagaaattgatttggagaaatataaacttctgccagaatacccaggtgttctctctgatgtccaggagg
agaaaggcattaagtacaaatttgaagtatatgagaagaatgTTAATTAAgggcaccaataactgccttaaaaaaat
tacgccccgccctgccactcatcgcagtactgttgtaattcattaagcattctgccgacatggaagccatcacagacggcat
gatgaacctgaatcgccagcggcatcagcaccttgtcgccttgcgtataatatttgcccatggtgaaaacggggggcgaag
aagttgtccatattggccacgtttaaatcaaaactggtgaaactcacccagggattggctgagacgaaaaacatattctcaat
aaaccctttagggaaataggccaggttttcaccgtaacacgccacatcttgcgaatatatgtgtagaaactgccggaaatcg
tcgtggtattcactccagagcgatgaaaacgtttcagtttgctcatggaaaacggtgtaacaagggtgaacactatcccatat
caccagctcaccgtctttcattgccatacggaattccggatgagcattcatcaggcgggcaagaatgtgaataaaggccgg
ataaaacttgtgcttatttttctttacggtctttaaaaaggccgtaatatccagctgaacggtctggttataggtacattgagc-

aactgactgaaatgcctcaaaatgttctttacgatgccattgggatatatcaacggtggtatatccagtgattttttctccatttt
agcttccttagctcctgaaaatctcgataactcaaaaaatacgcccggtagtgatcttatttcattatggtgaaagttggaacc
tcttacgtgccgatcaacgtctcattttcgcçaaaTTAATTAAGGCGCGCCgctctcctggctaggagtcacg
tagaaaggactaccgacgaaggaacttgggtcgccggtgtgttcgtatatggaggtagtaagacctccctttacaacctaa
ggcgaggaactgcccttgctattccacaatgtcgtcttacaccattgagtcgtctcccctttggaatggcccctggacccgg
cccacaacctggcccgctaagggagtccattgtctgttatttcatggtctttttacaaactcatatatttgctgaggttttgaag
gatgcgattaaggaccttgttatgacaaagcccgctcctacctgcaatatcagggtgactgtgtgcagctttgacgatggag
tagatttgcctccctggtttccacctatggtggaaggggctgccgcggagggtgatgacggagatgacggagatgaagg
aggtgatggagatgagggtgaggaagggcaggagtgatgtaacttgttaggagacgccctcaatcgtattaaaagccgtg
tattcccccgcactaaagaataaatccccagtagacatcatgcgtgctgttggtgtatttctggccatctgtcttgtcaccattt .
tcgtcctcccaacatggggcaattgggcatacccatgttgtcacgtcactcagctccgcgctcaacaccttctcgcgttgga
aaacattagcgacatttacctggtgagcaatcagacatgcgacggctttagcctggcctccttaaattcacctaagaatggg
agcaaccagcatgcaggaaaaggacaagcagcgaaaattcacgcccccttgggaggtggcggcatatgcaaaggatag
cactcccactctactactgggtatcatatgctgactgtatatgcatgaggatagcatatgctacccggatacagattaggata
gcatatactacccagatatagattaggatagcatatgctacccagatatagattaggatagcctatgctacccagatataaatt
aggatagcatatactacccagatatagattaggatagcatatgctacccagatatagattaggatagcctatgctacccagat
atagattaggatagcatatgctacccagatatagattaggatagcatatgctatccagatatttgggtagtatatgctacccag
atataaattaggatagcatatactaccctaatctctattaggatagcatatgctacccggatacagattaggatagcatatact
acccagatatagattaggatagcatatgctacccagatatagattaggatagcctatgctacccagatataaattaggatagc
atatactacccagatatagattaggatagcatatgctacccagatatagattaggatagcctatgctacccagatatagatta
ggatagcatatgctatccagatatttgggtagtatatgctacccatggcaacattagcccaccgtgctctcagcgacctcgtg
aatatgaggaccaacaaccctgtgcttggcgctcaggcgcaagtgtgtgtaatttgtcctccagatcgcagcaatcgcgcc
cctatcttggcccgcccacctacttatgcaggtattcccgggggtgccattagtggttttgtgggcaagtggtttgaccgcag
tggttagcggggttacaatcagccaagttattacacccttattttacagtccaaaaccgcagggcggcgtgtgggggctga
cgcgtgcccccactccacaatttcaaaaaaaagagtggccacttgtctttgtttatgggccccattggcgtggagccccgttt
aattttcggggggtgttagagacaaccagtggagtccgctgctgtcggcgtccactctctttcccccttgttacaaatagagtgt
aacaacatggttcacctgtcttggtccctgcctgggacacatcttaataaccccagtatcatattgcactaggattatgtgttg
cccatagccataaattcgtgtgagatggacatccagtctttacggcttgtccccaccccatggatttctattgttaaagatattc
agaatgtttcattcctacactagtatttattgcccaagggggtttgtgagggttatattggtgtcatagcacaatgccaccactga
accccccgtccaaatttttattctgggggcgtcacctgaaaccttgttttcgagcacctcacatacaccttactgttcacaactc
agcagttattctattagctaaacgaaggagaatgaagaagcaggcgaagattcaggagagttcactgcccgctccttgatc
ttcagccactgcccttgtgactaaaatggttcactaccctcgtggaatcctgaccccatgtaaataaaaccgtgacagctcat
ggggtgggagatatcgctgttccttaggacccttttactaaccctaattcgatagcatatgcttcccgttgggtaacatatgct
attgaattagggttagtctggatagtatatactactacccgggaagcatatgctacccgtttagggttaacaaggggggcctta
taaacactattgctaatgccctcttgagggtccgcttatcggtagctacacaggcccctctgattgacgttggtgtagcctcc
cgtagtcttcctgggcccctgggaggtacatgtcccccagcattggtgtaagagcttcagccaagagttacacataaaggc
aatgttgtgttgcagtccacagactgcaaagtctgctccaggatgaaagccactcagtgttggcaaatgtgcacatccattta
taaggatgtcaactacagtcagagaacccctttgtgtttggtcccccccccgtgtcacatgtggaacagggcccagttggca
agttgtaccaaccaactgaagggattacatgcactgccccgaatacaaaacaaaagcgctcctcgtaccagcgaagaagg
ggcagagatgccgtagtcaggtttagttcgtccggcggcggGCGGCCGCAAGGCGCGCCGGATCC
ACAGGACGGGTGTGGTCGCCATGATCGCGTAGTCGATAGTGGCTCCAAGT
AGCGAAGCGAGCAGGACTGGGCGGCGGCCAAAGCGGTCGGACAGTGCTCC
GAGAACGGGTGCGCATAGAAATTGCATCAACGCATATAGCGCTAGATCCT
TGCTAGAGTCGAGATCTGTCGAGCCATGTGAGCAAAAGGCCAGCAAAAGG
CCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCC
CCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAAC
CCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTG
CGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCC
CTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGT-

FiGURE 33B

TCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTT
CAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCG
GTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAG
CAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTA
ACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGC
CAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCA
CCGCTGGTAGCGGTGGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAA
AAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTC
AGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAA
AGGATCTTCACCTAGATCCTTTTATCGGTGTGAAATACCGCACAGATGCGT
AAGGAGAAAATACCGCATCAGGAAATTGTAAGCGTTAATAATTCAGAAGA
ACTCGTCAAGAAGGCGATAGAAGGCGATGCGCTGCGAATCGGGAGCGGCG
ATACCGTAAAGCACGAGGAAGCGGTCAGCCCATTCGCCGCCAAGCTCTTCA
GCAATATCACGGGTAGCCAACGCTATGTCCTGATAGCGGTCCGCCACACCC
AGCCGGCCACAGTCGATGAATCCAGAAAAGCGGCCATTTTCCACCATGATA
TTCGGCAAGCAGGCATCGCCATGGGTCACGACGAGATCCTCGCCGTCGGG
CATGCTCGCCTTGAGCCTGGCGAACAGTTCGGCTGGCGCGAGCCCCTGATG
CTCTTCGTCCAGATCATCCTGATCGACAAGACCGGCTTCCATCCGAGTACG
TGCTCGCTCGATGCGATGTTTCGCTTGGTGGTCGAATGGGCAGGTAGCCGG
ATCAAGCGTATGCAGCCGCCGCATTGCATCAGCCATGATGGATACTTTCTC
GGCAGGAGCAAGGTGAGATGACAGGAGATCCTGCCCCGGCACTTCGCCCA
ATAGCAGCCAGTCCCTTCCCGCTTCAGTGACAACGTCGAGCACAGCTGCGC
AAGGAACGCCCGTCGTGGCCAGCCACGATAGCCGCGCTGCCTCGTCTTGCA
GTTCATTCAGGGCACCGGACAGGTCGGTCTTGACAAAAAGAACCGGGCGC
CCCTGCGCTGACAGCCGGAACACGGCGGCATCAGAGCAGCCGATTGTCTG
TTGTGCCCAGTCATAGCCGAATAGCCTCTCCACCCAAGCGGCCGGAGAACC
TGCGTGCAATCCATCTTGTTCAATCATGCGAAACGATCCTCATCCTGTCTCT
TGATCAGAGCTTGATCCCCTGCGCCATCAGATCCTTGGCGGCGAGAAAGCC
ATCCAGTTTACTTTGCAGGGCTTGTCAACCTTACCAGATAAAAGTGCTCAT
CATTGGAAAAcattcaattcgtcgacctcgaaattctaccgggtaggggaggcgcttttcccaaggcagtctgga
gcatgcgctttagcagcccgctgggcacttggcgctacacaagtggcctctggcctcgcacacattccacatccaccggt
aggcgccaaccggctccgttctttggtggcccccttcgcgccaccttctactcctcccctagtcaggaagttcccccccgccc
cgcancctcgcgtcgtgcaggacgtgacaaatggaaatagcacgtctcactagtctcgtgcagatggacaagcaccgctga
gcaatggagcgggtaggcctttggggcagcggccaatagcagctttgctccttcgctttctgggctcagaggctggnaag
gggtgggtccggggcgcgggctcaggggcggggctcaggggcggggcggcgcccgaaggtcctccggaggcccgg
cattctgcacgcttcaaaagcgcacgtctgccgcgctgttctcctcttcctcatctccgggcctttcgacctgcatccatctag
atctcgagcagctgaagcttaccatgaccgagtacaagcccacggtgcgcctcgccacccgcgacgacgtccccgggc
cgtacgcaccctcgccgccgcgttcgccgactaccccgccacgcgccacaccgtcgacccggaccgccacatcgagcg
ggtcaccgagctgcaagaactcttcctcacgcgcgtcgggctcgacatcggcaaggtgtgggtcgcggacgacggcgc
cgcggtggcggtctggaccacgccggagagcgtcgaagcggggggcggtgttcgccgagatcggcccgcgcatggcc
gagttgagcggttcccggctggccgcgcagcaacagatggaaggcctcctggcgccgcaccgggcccaaggagcccg
cgtggttccttggcccaccgtcgggcgtcttcgcccgaccaccagggcaagggtctggcaagcgccgtcgtgctccccg
gagtggaggcggccgagcgcgccggggtgcccgccttcctggagacctccgcgccccgcaacctcccccttctacgagc
ggctcggcttcaccgtcaccgccgacgtcgaggtgcccgaaggaccgcgcacctggtgcatgacccgcaagcccggtg
cctgacgcccgccccacgacccgcagcgcccgaccgaaaggagcgcacgacccccatgcatcgatggcactgggcagg
taagtatcaaggttagcGGCCGCTAACCTGGTTGCTGACTAATTGAGATGCATGCTTT
GCATACTTCTGCCTGCTGGGGAGCCTGGGGACTTTCCACACCCTAACTGAC
ACACATTCCACAGCTGGTTCTTTCCGCCTCAGAAGGTACACAGGCGAAATT
GTAAGCGTTAATATTTTGTTAAAATTCGCGTTAAATTTTTGTTAAATCAGC-

FIGURE 33C

TCATTTTTTAACCAATAGGCCGAAATCGGCAAAATCCCTTATAAATCAAAA
GAATAGACCGAGATAGGGTTGAGTGTTGTTCCAGTTTGGAACAAGAGTCC
ACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGAAAAACCGTCTATC
AGGGCGATGGCCCAC

FIGURE 33D

tcaacgacaggagcacgatcatgcgcacccgtggccaggacccaacgctgcccgagatgcgccgcgtgcggctgctgg
agatggcggacgcgatggatatgttctgccaaggggttggtttgcgcattcacagttctccgcaagaattgattggctccaatt
cttggagtggtgaatccgttagcgaggtgccgccggcttccattcaggtcgaggtggcccggctccatgcaccgcgacg
caacgcggggaggcagacaaggtatagggcggcgcctacaatccatgccaacccgttccatgtgctcgccgaggcggc
ataaatcgccgtgacgatcagcggtccagtgatcgaagttaggctggtaagagccgcgagcgatccttgaagctgtccct
gatggtcgtcatctacctgcctggacagcatggcctgcaacgcgggcatcccgatgccgccggaagcgagaagaatcat
aatggggaaggccatccagcctcgcgtcgcgaacgccagcaagacgtagcccagcgcgtcggccgccatgccggcga
taatggcctgcttctcgccgaaacgtttggtggcgggaccagtgacgaaggcttgagcgagggcgtgcaagattccgaat
accgcaagcgacaggccgatcatcgtcgcgctccagcgaaagcggtcctcgccgaaaatgacccagagcgctgccggc
acctgtcctacgagttgcatgataaagaagacagtcataagtgcggcgacgatagtcatgccccgcgcccaccggaagg
agctgactgggttgaaggctctcaagggcatcggtcgacgctctcccttatgcgactcctgcattaggaagcagcccagta
gtaggttgaggccgttgagcaccgccgccgcaaggaatggtgcatgcaaggagatggcgcccaacagtcccccggcca
cgggggcctgccaccatacccacgccgaaacaagcgctcatgagcccgaagtggcgagcccgatcttccccatcggtgat
gtcggcgatataggcgccagcaaccgcacctgtggcgccggtgatgccggccacgatgcgtccggcgtagaggatcca
caggacgggtgtggtcgccatgatcgcgtagtcgatagtggctccaagtagcgaagcgagcaggactgggcggcggcc
aaagcggtcggacagtgctccgagaacgggtgcgcatagaaattgcatcaacgcatatagcgctagcagcacgccatag
tgactggcgatgctgtcggaatggacgatatcccgcaagaggcccggcagtaccggcataaccaagcctatgcctacag
catccagggtgacggtgccgaggatgacgatgagcgcattgttagatttcatacacggtgcctgactgcgttagcaatttaa
ctgtgataaactaccgcattaaagcttatcgatttccacacattatacgagccgatgttaattgtcaacagctcatgcatgacg
tcccgggagcagacaagcccgtcagggcgcgtcagcgggtgttggcgggtgtcggggctggcttaactatgcggcatc
agagcagattgtactgagagtgcaccatatgcggtgtgaaataccgcacagatgcgtaaggagaaaataccgcatcaggc
gccattcgccattcaggctgcgcaactgttgggaagggcgatcggtgcgggcctcttcgctattacgccagctggcgaaa
gggggatgtgctgcaaggcgattaagttgggtaacgccagggttttcccagtcacgacgttgtaaaacgacggccagtga
attcGAGCTCaTACTTCGAATAGGGATAACAGGGTAATGCGATagcggccgcaatCG
CTCTCTTAAGGTAGCccgtgcTGGCAAACAGCTATTATGGGTATTATGGGTGG
GCCCTAGAAAGCTTggcgtaatcatggtcatagctgtttcctgtgtgaaattgttatccgctcacaattccacac
aacatacgagccggaagcataaagtgtaaagcctggggtgcctaatgagtgagctaactcacattaattgcgttgcgctca
ctgcccgctttccagtcgggaaacctgtcgtgccagctgcattaatgaatcccgcgaggtcgccgcccccgtaacccccta cc
gctgaaagttctgcaaagcctgatgggacataagtccatcagttcaacggaagtctacacgaaggttttgcgctggatgtg
gctgcccggcaccgggtgcagtttgcgatgccggagtctgatgcggttgcgatgctgaaacaattatcctgagaataaatg
ccttggcctttatatggaaatgtggaactgagtggatatgctgtttttgtctgttaaacagagaagctggctgttatccactga
gaagcgaacgaaacagtcgggaaaatctcccattatcgtagagatccgcattattaatctcaggagcctgtgtagcgtttat
aggaagtagtgttctgtcatgatgcctgcaagcggtaacgaaaacgatttgaatatgccttcaggaacaatagaaatcttcg
tgcggtgttacgttgaagtggagcggattatgtcagcaatggacagaacaacctaatgaacacagaaccatgatgtggtct
gtcctttacagccagtagtgctcgccgcagtcgagcgacagggcgaagccctcgagtgagcgaggaagcaccaggga
acagcacttatatattctgcttacacacgatgcctgaaaaaacttcccttggggttatccacttatccacggggatattttttata
attatttttttatagtttttagatcttcttttttagagcgccttgtaggcctttatccatgctggttctagagaaggtgttgtgacaa
attgcccttttcagtgtgacaaatcaccctcaaatgacagtcctgtctgtgacaaattgcccttaaccctgtgacaaattgccct
cagaagaagctgttttttcacaaagttatccctgcttattgactctttttatttagtgtgacaatctaaaaaacttgtcacacttcac
atggatctgtcatggcggaaacagcggttatcaatcacaagaaacgtaaaaatagcccgcgaatcgtccagtcaaacgac
ctcactgaggcggcatatagtctctcccgggatcaaaaacgtatgctgtatctgttcgttgaccagatcagaaaatctgatg
gcaccctacaggaacatgacggtatctgcgagatccatgttgctaaatatgctgaaatattcggattgacctctgcggaagc
cagtaaggatatacggcaggcattgaagagtttcgcggggaaggaagtggtttttatcgccctgaagaggatgccggcg
atgaaaaaggctatgaatctttccttggtttatcaaacgtgcgcacagtccatccagagggctttacagtgtacatatcaacc
catatctcattcccttctttatcgggttacagaaccggtttacgcagtttcggcttagtgaaacaaaagaaatcaccaatccgt
atgccatgcgtttatacgaatccctgtgtcagtatcgtaagccggatggctcaggcatcgtctctctgaaaatcgactggatc
atagagcgttaccagctgcctcaaagttaccagcgtatgcctgacttccgccgccgcttcctgcaggtctgtgttaatgaga
tcaacagcagaactccaatgcgcctctcatacattgagaaaaagaaaggccgccagacgactcatatcgtattttccttccg
cgatatcacttccatgacgacaggatagtctgaggggttatctgtcacagatttgagggtggttcgtcacatttgttctgacct-

actgagggtaatttgtcacagttttgctgtttccttcagcctgcatggattttctcatactttttgaactgtaattttaaggaagc
caaatttgagggcagtttgtcacagttgatttccttctctttcccttcgtcatgtgacctgatatcggggggttagttcgtcatcat
tgatgagggttgattatcacagtttattactctgaattggctatccgcgtgtgtacctctacctggagttttcccacggtggat
atttcttcttgcgctgagcgtaagagctatctgacagaacagttcttcttttgcttcctcgccagttcgctcgctatgctcggtta
cacggctgcggcgagcgctagtgataataagtgactgaggtatgtgctcttcttatctcctttgtagtgttgctcttattttaaa
caactttgcggttttttgatgactttgcgattttgttgttgctttgcagtaaattgcaagatttaataaaaaaacgcaaagcaatg
attaaaggatgttcagaatgaaactcatggaaacacttaaccagtgcataaacgctggtcatgaaatgacgaaggctatcg
ccattgcacagtttaatgatgacagcccggaagcgaggaaaataacccggcgctggagaataggtgaagcagcggattt
agttggggtttcttctcaggctatcagagatgccgagaaagcagggcgactaccgcacccggatatggaaattcgaggac
gggttgagcaacgtgttggttatacaattgaacaaattaatcatatgcgtgatgtgtttggtacgcgattgcgacgtgctgaa
gacgtatttccaccggtgatcgggggttgctgcccataaaggtggcgtttacaaaacctcagtttctgttcatcttgctcaggat
ctggctctgaaggggctacgtgtttttgctcgtggaaggtaacgacccccagggaacagcctcaatgtatcacggatgggt
accagatcttcatattcatgcagaagacactctcctgcctttctatcttggggaaaaggacgatgtcacttatgcaataaagc
ccacttgctggccggggcttgacattattccttcctgtctggctctgcaccgtattgaaactgagttaatgggcaaatttgatg
aaggtaaactgcccaccgatccacacctgatgctccgactggccattgaaactgttgctcatgactatgatgtcatagttatt
gacagcgcgcctaacctgggtatcggcacgattaatgtcgtatgtgctgctgatgtgctgattgttcccacgcctgctgagtt
gtttgactacacctccgcactgcagtttttcgatatgcttcgtgatctgctcaagaacgttgatcttaaagggttcgagcctgat
gtacgtattttgcttaccaaatacagcaatagtaatggctctcagtccccgtggatggaggagcaaattcgggatgcctggg
gaagcatggttctaaaaaatgttgtacgtgaaacggatgaagttggtaaaggtcagatccggatgagaactgttttttgaaca
ggccattgatcaacgctcttcaactggtgcctggagaaatgctctttctatttgggaacctgtctgcaatgaaattttcgatcgt
ctgattaaaccacgctgggagattagataatgaagcgtgcgcctgttattccaaaacatacgctcaatactcaaccggttga
agatacttcgttatcgacaccagctgccccgatggtggattcgttaattgcgcgcgtaggagtaatggctcgcggtaatgcc
attactttgcctgtatgtggtcgggatgtgaagtttactcttgaagtgctccgggggtgatagtgttgagaagacctctcgggt
atggtcaggtaatgaacgtgaccaggagctgcttactgaggacgcactggatgatctcatcccttctttctactgactggtc
aacagacaccggcgttcggtcgaagagtatctggtgtcatagaaattgccgatgggagtcgccgtcgtaaagctgctgca
cttaccgaaagtgattatcgtgttctggttggcgagctggatgatgagcagatggctgcattatccagattgggtaacgatta
tcgcccaacaagtgcttatgaacgtggtcagcgttatgcaagccgattgcagaatgaatttgctggaaatatttctgcgctgg
ctgatgcggaaaatatttcacgtaagattattacccgctgtatcaacaccgccaaattgcctaaatcagttgttgctcttttttct
cacccggtgaactatctgcccggtcaggtgatgcacttcaaaaagcctttacagataaagaggaattacttaagcagcag
gcatctaaccttcatgagcagaaaaaagctggggtgatatttgaagctgaagaagttatcactcttttaacttctgtgcttaaa
acgtcatctgcatcaagaactagtttaagctcacgacatcagtttgctcctggagcgacagtattgtataagggcgataaaat
ggtgcttaacctggacaggtctcgtgttccaactgagtgtatagagaaaattgaggccattcttaaggaacttgaaaagcca
gcaccctgatgcgaccacgtttagtctacgtttatctgtctttacttaatgtcctttgttacaggccagaaagcataactggcc
tgaatattctctctgggccagaagcttggcccactgttccacttgtatcgtcggtctgataatcagactgggaccacggtccc
actcgtatcgtcggtctgattattagtctgggaccacggtcccactcgtatcgtcggtctgattattagtctgggaccacggt
cccactcgtatcgtcggtctgataatcagactgggaccacggtcccactcgtatcgtcggtctgattattagtctgggaccat
ggtcccactcgtatcgtcggtctgattattagtctgggaccacggtcccactcgtatcgtcggtctgattattagtctggaacc
acggtcccactcgtatcgtcggtctgattattagtctgggaccacggtcccactcgtatcgtcggtctgattattagtctggg
accacgatcccactcgtgttgtcggtctgattatcggtctgggaccacggtcccacttgtattgtcgatcagactatcagcgt
gagactacgattccatcaatgcctgtcaagggcaagtattgacatgtcgtcgtaacctgtagaacggagtaacctcggtgtg
cggttgtatgcctgctgtggattgctgctgtgtcctgcttatccacaacattttgcgcacggttatgtggacaaaatacctgC
GCTAGAgaaaagagtttgtagaaacgcaaaaaggccatccgtcaggatggccttctgcttaatttgatgcctggcagt
ttatggcgggcgtcctgcccgccaccctccgggccgttgcttcgcaacgttcaaatccgctcccggcggatttgtcctactc
aggagagcgttcaccgacaaacaacagataaaacgaaaggcccagtctttcgactgagccttcgttttatttgatgcctgg
cagttccctactctcgcatggggagaccccacactaccatcggcgctacggcgtttcacttctgagttcggcatggggtca
ggtgggaccaccgcgctactgccgccaggcaaattctgttttatcagaccgcttctgcgttctgggccgc

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAA
TCAATATTGGCTATTGGCCATTGCATACGTTGTATCTATATCATAATATGTA
CATTTATATTGGCTCATGTCCAATATGACCGCCATGTTGGCATTGATTATTG
ACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATAT
ATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCG
CCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTA
ACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAA
ACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTCCGCCCCCT
ATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATG
ACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCT
ATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCG
GTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG
TTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTG
CGATCGCCCGCCCCGTTGACGCAAATGGGCGGTAGGCGTGTACGGTGGGA
GGTCTATATAAGCAGAGCTcgtttagtgaaccgtcagatcactgaattctgacgacctactgattaacggc
catagaggcctcctgcagaactgtcttagtgacaactatCGATTTCCACACATTATACGAGCCGAT
GTTAATTGTCAACAGCTCATGCATGACGTCCCGGGAGCAGACAAGCCCGacc
atggctcgagTAATACGACTCACTATAGGGCGACAGGTGAGTACTCGCTACCTT
AAGAGAGGCCTATCTGGCCAGTTAGCAGTCGAAGAAAGAAGTTTAAGAGA
GCCGAAACAAGCGCTCATGAGCCCGAAGTGGCGAGCCCGATCTTCCCCAT
CGGTGATGTCGGCGATATAGGCGCCAGCAACCGCACCTGTGGCGCCGGTG
ATGCCGGCCACGATGCGTCCGGCGTAGAGGATCCACAGGACGGGTGTGGT
CGCCATGATCGCGTAGTCGATAGTGGCTCCAAGTAGCGAAGCGAGCAGGA
CTGGGCGGCGGCCAAAGCGGTCGGACAGTGCTCCGAGAACGGGTGCGCAT
AGAAATTGCATCAACGCATATAGCGCTAGATCCTTGCTAGAGTCGAGATCT
GTCGAGCCATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAG
GCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCAC
AAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAG
ATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGAC
CCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGC
GCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCG
CTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGC
CTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATC
GCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAG
GCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAA
GGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAA
GAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTT
TTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAA
GATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCA
CGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATC
CTTTTatcggtgtgaaataccgcacagatgcgtaaggagaaaataccgcatcaggaaattgtaagcgttaataattcag
aagaactcgtcaagaaggcgatagaaggcgatgcgctgcgaatcgggagcggcgataccgtaaagcacgaggaagcg
gtcagcccattcgccgccaagctcttcagcaatatcacgggtagccaacgctatgtcctgatagcggtccgccacacccag
ccggccacagtcgatgaatccagaaaagcggccattttccaccatgatattcggcaagcaggcatcgccatgggtcacga
cgagatcctcgccgtcgggcatgctcgccttgagcctggcgaacagttcggctggcgcgagcccctgatgctcttcgtcc
agatcatcctgatcgacaagaccggcttccatccgagtacgtgctcgctcgatgcgatgtttcgcttggtggtcgaatgggc
aggtagccggatcaagcgtatgcagccgccgcattgcatcagccatgatggatactttctcggcaggagcaaggtgagat
gacaggagatcctgccccggcacttcgcccaatagcagccagtcccttcccgcttcagtgacaacgtcgagcacagctgc
gcaaggaacgcccgtcgtggccagccacgatagccgcgctgcctcgtcttgcagttcattcagggcaccggacaggtc-

FIGURE 35-A

ggtcttgacaaaaagaaccgggcgcccctgcgctgacagccggaacacggcggcatcagagcagccgattgtctgttgt
gcccagtcatagccgaatagcctctccacccaagcggccggagaacctgcgtgcaatccatcttgttcaatcatgcgaaac
gatcctcatcctgtctcttgatcagagcttgatcccctgcgccatcagatccttggcggcgagaaagccatccagtttacttt
gcagggcttgtcaaccttaccagatAAAAGTGCTCATCATTGGAAAACGTTCAATTcTGAG
GCGGAAAGAACCAGCTGTGGAATGTGTGTCAGTTAGGGTGTGGAAAGTCC
CCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCA
GCAACCAGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCA
AAGCATGCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCTAACTCCGCC
CATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTG
ACTAATTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCT
ATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAA
GCTTGATTCTTCTGACACAACAGTCTCGAACTTAAGGCTAGAGCCACCATG
ATTGAACAAGATGGATTGCACGCAGGTTCTCCGGCCGCTTGGGTGGAGAG
GCTATTCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCTGATGCCGC
CGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGA
CCTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGT
GGCTGGCCACGACGGGCGTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTG
AAGCGGGAAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTC
CTGTCATCTCACCTTGCTCCTGCCGAGAAAGTATCCATCATGGCTGATGCA
ATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAA
GCGAAACATCGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGT
CGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAAC
TGTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTG
ACCCATGGCGATGCCTGCTTGCCGAATATCATGGTGGAAAATGGCCGCTTT
TCTGGATTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAGGAC
ATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCT
GACCGCTTCCTCGTGCTTTACGGTATCGCCGCTCCCGATTCGCAGCGCATC
GCCTTCTATCGCCTTCTTGACGAGccaTTCtgctggcaggtaagtcgcagccctggcgtcgtgatt
agtgatgatgaaccaggttatgaccttgatttattttgcatacctaatcattatgctgaggatttggaaagggtgtttattcctca
tggactaattatggacaggactgaacgtcttgctcgagatgtgatgaaggagatgggaggccatcacattgtagccctctg
tgtgctcaaggggggggctataaattctttgctgacctgctggattacatcaaagcactgaatagaaatagtgatagatccattc
ctatgactgtagattttatcagactgaagagctattgtaatgaccagtcaacaggggacataaaagtaattggtggagatgat
ctctcaactttaactggaaagaatgtcttgattgtggaagatataattgacactggcaaaacaatgcagactttgctttccttg
gtcaggcagtataatccaaagatggtcaaggtcgcaagcttgctggtgaaaaggaccccacgaagtgttggatataagcc
agactttgttggatttgaaattccagacaagtttgttgtaggatatgcccttgactataatgaatacttcagggatttgaatcat
gtttgtgtcattagtgaaactggaaaagcaaaatacaaagcctaaGCGGCCGCTAACCTGGTTGCTGA
CTAATTGAGATGCATGCTTTGCATACTTCTGCCTGCTGGGGAGCCTGGGGA
CTTTCCACACCCTAACTGACACACATTCCACAGCTGGTTCTTTCCGCCTCAG
AAGGTACACAGGCGAAATTGTAAGCGTTAATATTTTGTTAAAATTCGCGTT
AAATTTTTGTTAAATCAGCTCATTTTTTAACCAATAGGCCGAAATCGGCAA
AATCCCTTATAAATCAAAAGAATAGACCGAGATAGGGTTGAGTGTTGTTCC
AGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAG
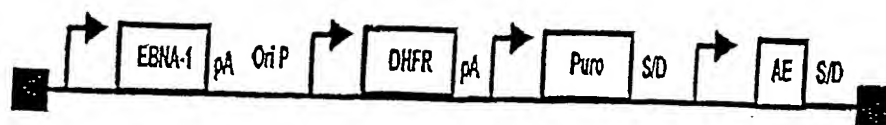GGCGAAAAACCGTCTATCAGGGCGATGGCCCAC

FiGURE 35B

FIGURE 36

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAA
TCAATATTGGCTATTGGCCATTGCATACGTTGTATCTATATCATAATATGTA
CATTTATATTGGCTCATGTCCAATATGACCGCCATGTTGGCATTGATTATTG
ACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATAT
ATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCG
CCCAACGACCCCCGCCCATTGACGTCAATAATGACGTATGTTCCCATAGTA
ACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAA
ACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTCCGCCCCCT
ATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCCAGTACATG
ACCTTACGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCT
ATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCG
GTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG
TTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTG
CGATCGCCCGCCCCGTTGACGCAAATGGGCGGTAGGCGTGTACGGTGGGA
GGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTGAATTCTG
ACGACCTACTGATTAACGGCCATAGAGGCCTCCTGCAGAACTGTCTTAGTG
ACAACTATCGATTTCCACACATTATACGAGCCGATGTTAATTGTCAACAGC
TCATGCATGACGTCCCGGGAGCAGACAAGCCCGACCATGGCTCGAGTAAT
ACGACTCACTATAGGGCGACAGGTGAGTACTCGCTACCTTAAggcctatctggccg
tttaaacagatgtgtataagagacagctctcttaaGGTAGCCTGTCTCTTATACACATCTagatccttg
ctagagtcgaccaattctcatgtttgacagcttatcatcgcagatcctgagcttgtatggtgcactctcagtacaatctgctct
gctgccgcatagttaagccagtatctgctccctgcttgtgtgttggaggtcgctgagtagtgcgcgagcaaaatttaagcta
caacaaggcaaggcttgaccgacaattgcatgaagaatctgcttagggttaggcgttttgcgctgcttcgcgatgtacggg
ccagatatacgcgtatctgaggggactagggtgtgtttaggcgcccagcggggcttcggttgtacgcggttaggagtccc
ctcaggatatagtagtttcgcttttgcatagggagggggaaatgtagtcttatgcaatacacttgtagtcttgcaacatggtaa
cgatgagttagcaacatgccttacaaggagagaaaaagcaccgtgcatgccgattggtggaagtaaggtggtacgatcgt
gccttattaggaaggcaacagacaggtctgacatggattggacgaaccactgaattccgcattgcagagataattgtattta
agtgcctagctcgatacaataaacgccatttgaccattcaccacattggtgtgcacctccaagctgggtaccagctgctagc
ctcgagacgcgtgatttccttcgaagcttgtcatggttggttcgctaaactgcatcgtcgctgtgtcccagaacatgggcatc
ggcaagaacggggacctgccctggccaccgctcaggaatgaattcagatatttccagagaatgaccacaacctcttcagt
agaaggtaaacagaatctggtgattatgggtaagaagacctggttctccattcctgagaagaatcgacctttaaagggtaga
attaatttagttctcagcagagaactcaaggaacctccacaaggagctcattttctttccagaagtctagatgatgccttaaaa
cttactgaacaaccagaattagcaaataaagtagacatggtctggatagttggtggcagttctgtttataaggaagccatga
atcacccaggccatcttaaactatttgtgacaaggatcatgcaagactttgaaagtgacacgtttttccagaaattgatttgg
agaaatataaacttctgccagaatacccaggtgttctctctgatgtccaggaggagaaaggcattaagtacaaatttgaagt
atatgagaagaatgTTAATTAAgggcaccaataactgccttaaaaaaattacgccccgccctgccactcatcgcagt
actgttgtaattcattaagcattctgccgacatggaagccatcacagacggcatgatgaacctgaatcgccagcggcatca
gcaccttgtcgccttgcgtataatatttgcccatggtgaaaacggggggcgaagaagttgtccatattggccacgtttaaatca
aaactggtgaaactcacccagggattggctgagacgaaaaacatattctcaataaacccttagggaaataggccaggtttt
caccgtaacacgccacatcttgcgaatatatgtgtagaaactgccggaaatcgtcgtggtattcactccagagcgatgaaa
acgtttcagtttgctcatggaaaacggtgtaacaaggtgaacactatcccatcaccagctcaccgtctttcattgccata
cggaattccggatgagcattcatcaggcgggcaagaatgtgaataaaggccggataaaacttgtgcttatttttctttacggt
ctttaaaaaggccgtaatatccagctgaacggtctggttataggtacattgagcaactgactgaaatgcctcaaaatgttcttt
acgatgccattgggatatatcaacggtggtatatccagtgatttttttctccattttagcttccttagctcctgaaaatctcgata
actcaaaaaatacgcccggtagtgatcttatttcattatggtgaaagttggaacctcttacgtgccgatcaacgtctcatttttcg
ccaaaTTAATTAAGGCGCGCCgctctcctggctaggagtcacgtagaaaggactaccgacgaaggaactt
gggtcgccggtgtgttcgtatatggaggtagtaagacctccctttacaacctaaggcgaggaactgcccttgctattccaca
atgtcgtcttacaccattgagtcgtctcccctttggaatggcccctggacccggcccacaacctggcccgctaagggagtc
cattgtctgttatttcatggtcttttacaaactcatatatttgctgaggttttgaaggatgcgattaaggaccttgttatgacaa-

agcccgctcctacctgcaatatcaggggtgactgtgtgcagctttgacgatggagtagatttgcctccctggtttccaccatg
gtggaagggggctgccgcggagggtgatgacggagatgacggagatgaaggaggtgatggagatgagggtgaggaag
ggcaggagtgatgtaacttgttaggagacgccctcaatcgtattaaaagccgtgtattcccccgcactaaagaataaatccc
cagtagacatcatgcgtgctgttggtgtatttctggccatctgtcttgtcaccattttcgtcctcccaacatggggcaattggg
catacccatgttgtcacgtcactcagctccgcgctcaacaccttctcgcgttggaaaacattagcgacatttacctggtgagc
aatcagacatgcgacggctttagcctggcctccttaaattcacctaagaatggggagcaaccagcatgcaggaaaaggaca
agcagcgaaaattcacgcccccttggggaggtggcggcatatgcaaaggatagcactcccactctactactgggtatcatat
gctgactgtatatgcatgaggatagcatatgctacccggatacagattaggatagcatatactacccagatatagattaggat
agcatatgctacccagatatagattaggatagcctatgctacccagatataaattaggatagcatatactacccagatataga
ttaggatagcatatgctacccagatatagattaggatagcctatgctacccagatatagattaggatagcatatgctacccag
atatagattaggatagcatatgctatccagatatttgggtagtatatgctacccagatataaattaggatagcatatactaccct
aatctctattaggatagcatatgctacccggatacagattaggatagcatatactacccagatatagattaggatagcatatg
ctacccagatatagattaggatagcctatgctacccagatataaattaggatagcatatactacccagatatagattaggata
gcatatgctacccagatatagattaggatagcctatgctacccagatatagattaggatagcatatgctatccagatatttgg
gtagtatatgctacccatggcaacattagcccaccgtgctctcagcgacctcgtgaatatgaggaccaacaaccctgtgctt
ggcgctcaggcgcaagtgtgtgtaatttgtcctccagatcgcagcaatcgcgcccctatcttggcccgcccacctacttatg
caggtattccccggggtgccattagtggttttgtgggcaagtggtttgaccgcagtggttagcggggttacaatcagccaa
gttattacacccttattttacagtccaaaaccgcagggcggcgtgtgggggctgacgcgtgcccccactccacaatttcaaa
aaaaagagtggccacttgtctttgtttatgggccccattggcgtggagccccgtttaattttcgggggtgttagagacaacca
gtggagtccgctgctgtcggcgtccactctctttcccccttgttacaaatagagtgtaacaacatggttcacctgtcttggtccc
tgcctgggacacatcttaataacccagtatcatattgcactaggattatgtgttgcccatagccataaattcgtgtgagatgg
acatccagtctttacggcttgtccccaccccatggatttctattgttaaagatattcagaatgtttcattcctacactagtatttatt
gcccaagggggtttgtgagggttatattggtgtcatagcacaatgccaccactgaaccccccgtccaaattttattctgggggg
cgtcacctgaaaccttgtttcgagcacctcacatacaccttactgttcacaactcagcagttattctattagctaaacgaagg
agaatgaagaagcaggcgaagattcaggagagttcactgcccgctccttgatcttcagccactgcccttgtgactaaaatg
gttcactaccctcgtggaatcctgaccccatgtaaataaaaccgtgacagctcatggggtggggagatatcgctgttccttag
gacccttttactaaccctaattcgatagcatatgcttcccgttgggtaacatatgctattgaattagggttagtctggatagtat
atactactacccgggaagcatatgctacccgtttagggttaacaagggggccttataaacactattgctaatgccctcttgag
ggtccgcttatcggtagctacacaggcccctctgattgacgttggtgtagcctcccgtagtcttcctgggcccctgggaggt
acatgtcccccagcattggtgtaagagcttcagccaagagttacacataaaggcaatgttgtgttgcagtccacagactgca
aagtctgctccaggatgaaagccactcagtgttggcaaatgtgcacatccatttataaggatgtcaactacagtcagagaac
cccctttgtgtttggtcccccccccgtgtcacatgtggaacagggcccagttggcaagttgtaccaaccaactgaagggattac
atgcactgccccgaatacaaaacaaaagcgctcctcgtaccagcgaagaaggggcagagatgccgtagtcaggtttagtt
cgtccggcggcggGCGGCCGCAAGGCGCGCCGGATCCACAGGACGGGTGTGGTC
GCCATGATCGCGTAGTCGATAGTGGCTCCAAGTAGCGAAGCGAGCAGGAC
TGGGCGGCGGCCAAAGCGGTCGGACAGTGCTCCGAGAACGGGTGCGCATA
GAAATTGCATCAACGCATATAGCGCTAGATCCTTGCTAGAGTCGAGATCTG
TCGAGCCATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGG
CCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACA
AAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGA
TACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACC
CTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCG
CTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCT
CCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCT
TATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGC
CACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGC
GGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAG
GACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAG
AGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTT-

FIGURE 37B

TTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAA
GATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCA
CGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATC
CTTTTATCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGCAT
CAGGAAATTGTAAGCGTTAATAATTCAGAAGAACTCGTCAAGAAGGCGAT
AGAAGGCGATGCGCTGCGAATCGGGAGCGGCGATACCGTAAAGCACGAGG
AAGCGGTCAGCCCATTCGCCGCCAAGCTCTTCAGCAATATCACGGGTAGCC
AACGCTATGTCCTGATAGCGGTCCGCCACACCCAGCCGGCCACAGTCGATG
AATCCAGAAAAGCGGCCATTTTCCACCATGATATTCGGCAAGCAGGCATCG
CCATGGGTCACGACGAGATCCTCGCCGTCGGGCATGCTCGCCTTGAGCCTG
GCGAACAGTTCGGCTGGCGCGAGCCCCTGATGCTCTTCGTCCAGATCATCC
TGATCGACAAGACCGGCTTCCATCCGAGTACGTGCTCGCTCGATGCGATGT
TTCGCTTGGTGGTCGAATGGGCAGGTAGCCGGATCAAGCGTATGCAGCCG
CCGCATTGCATCAGCCATGATGGATACTTTCTCGGCAGGAGCAAGGTGAG
ATGACAGGAGATCCTGCCCCGGCACTTCGCCCAATAGCAGCCAGTCCCTTC
CCGCTTCAGTGACAACGTCGAGCACAGCTGCGCAAGGAACGCCCGTCGTG
GCCAGCCACGATAGCCGCGCTGCCTCGTCTTGCAGTTCATTCAGGGCACCG
GACAGGTCGGTCTTGACAAAAAGAACCGGGCGCCCCTGCGCTGACAGCCG
GAACACGGCGGCATCAGAGCAGCCGATTGTCTGTTGTGCCCAGTCATAGCC
GAATAGCCTCTCCACCCAAGCGGCCGGAGAACCTGCGTGCAATCCATCTTG
TTCAATCATGCGAAACGATCCTCATCCTGTCTCTTGATCAGAGCTTGATCC
CCTGCGCCATCAGATCCTTGGCGGCGAGAAAGCCATCCAGTTTACTTTGCA
GGGCTTGTCAACCTTACCAGATAAAAGTGCTCATCATTGGAAAAcattcaattcgt
cgacctcgaaattctaccgggtaggggaggcgcttttcccaaggcagtctggagcatgcgctttagcagccccgctgggc
acttggcgctacacaagtggcctctggcctcgcacacattccacatccaccggtaggcgccaaccggctccgttctttggt
ggccccttcgcgccaccttctactcctcccctagtcaggaagttccccccgccccgcanctcgcgtcgtgcaggacgtg
acaaatggaaatagcacgtctcactagtctcgtgcagatggacaagcaccgctgagcaatggagcgggtaggcctttggg
gcagcggccaatagcagctttgctccttcgctttctgggctcagaggctggnaaggggtgggtccggggcgggctcag
gggcgggctcaggggcggggcgggcgcccgaaggtcctccggaggcccggcattctgcacgcttcaaaagcgcacgt
ctgccgcgctgttctcctcttcctcatctccgggcctttcgacctgcatccatctagatctcgagcagctgaagcttaccatga
ccgagtacaagcccacggtgcgcctcgccaccgcgacgacgtccccgggccgtacgcaccctcgccgccgcgttcg
ccgactaccccgccacgcgccacaccgtcgacccggaccgccacatcgagcgggtcaccgagctgcaagaactcttcct
cacgcgcgtcgggctcgacatcggcaaggtgtgggtcgcggacgacggcgccgcggtggcggtctggaccacgccg
gagagcgtcgaagcggggggcggtgttcgccgagatcggcccgcgcatggccgagttgagcggttcccggctggccgc
gcagcaacagatggaaggcctcctggcgccgcaccgggcccaaggagcccgcgtggttccttggcccaccgtcgggc
gtcttcgcccgaccaccagggcaagggtctggcaagcgccgtcgtgctccccggagtggaggcggccgagcgcgccg
gggtgcccgccttcctggagacctccgcgccccgcaacctcccccttctacgagcggctcggcttcaccgtcaccgccgac
gtcgaggtgcccgaaggaccgcgcacctggtgcatgacccgcaagcccggtgcctgacgcccgcccccacgacccgca
gcgcccgaccgaaaggagcgcacgaccccatgcatcgatggcactgggcaggtaagtatcaaggttagcGGCCGC
TAACCTGGTTGCTGACTAATTGAGATGCATGCTTTGCATACTTCTGCCTGCT
GGGGAGCCTGGGGACTTTCCACACCCTAACTGACACACATTCCACAGCTGG
TTCTTTCCGCCTCAGAAGGTACACAGGCGAAATTGTAAGCGTTAATATTTT
GTTAAAATTCGCGTTAAATTTTTGTTAAATCAGCTCATTTTTTAACCAATAG
GCCGAAATCGGCAAAATCCCTTATAAATCAAAGAATAGACCGAGATAGG
GTTGAGTGTTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGA
CTCCAACGTCAAAGGGCGAAAAACCGTCTATCAGGGCGATGGCCCAC

FIGURE 37C